

T H E
FARMER'S MAGAZINE,
A N D
Useful FAMILY COMPANION.

CONSISTING OF
Practical Essays, Differtations, and Remarks,
O N T H E
Different Branches of Husbandry,

Including a great Variety of Modern Improvements :

A miscellaneous Collection of valuable FAMILY RECEIPTS
recommended from Experience ;

Useful HINTS and curious OBSERVATIONS

From the PHILOSOPHICAL TRANSACTIONS,

And the several Agriculture Societies in this Kingdom ;

POETICAL ESSAYS, and other Entertaining Articles ;

With EXTRACTS from every New Treatise on
AGRICULTURE, PLANTING, &c.

V O L. IV.

ILLUSTRATED WITH COPPER-PLATES.

By AGRICOLA SYLVAN, Gentleman.

What makes a plenteous Harvest, when to turn
The fruitful Soil, and when to sow the Corn ;
The Care of Sheep, of Oxen, and of Kine ;
And how to raise on Elms the teeming Vine ;
Is here display'd.

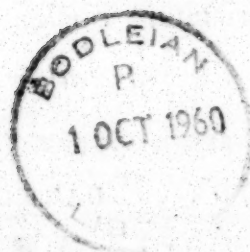
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M DCC LXXIX.



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INTRODUCTION.

OUR Third Volume being now concluded, we should be justly chargeable with ingratitude were we to omit introducing the *fourth* by expressing our sincere acknowledgments to those Gentlemen and Farmers who have honoured this work with their attention and patronage, the number of whom we have the satisfaction to find is considerably increased.

Our Thanks are also due to many respectable and ingenious correspondents, and in particular to the Agriculture Society at Bath, for the valuable materials with which they have kindly furnished us.—
• Hereby our principal design has been essentially promoted; and we have succeeded in laying a useful compendium of practical knowledge before our readers.

We are not insensible that books on agriculture, planting, and rural affairs, have of late years issued from the press in great number and variety; and could systematic instruction, or speculative reasoning, be relied on with safety, the *Farmer's Magazine* had been an unnecessary publication. But as many of these productions are either the labours of unpractised theorists, or the mere jobs of booksellers, the profitable instruction they contain will be found to bear but a small proportion to their bulk or number.

We shall therefore continue to extract and present to our readers such parts of every of these publications, as are most useful and interesting to the Gentleman and the practical Farmer. By thus furnishing our readers with the essence of large and costly volumes at an easy and trifling expence, we shall save them the charge of purchasing, and the trouble of searching through a wilderness of words, which would tend rather to confuse than to inform their understandings.

Still more valuable will that part of our work be which conveys the information of correspondents, who write from their own experience and successful practice: Of these the number has of late much increased; and the interesting letters lately sent us by the Bath Society has added greatly to the merit of our useful publication.

Convinced that our readers will judge freely for themselves, we wish not to trouble them with a tedious introduction: And as we know that pretensions to what we cannot accomplish must end in disgrace, we shall only add, that our best endeavours shall continue to be exerted with unremitting diligence, and that we only hope for encouragement in proportion as we may appear to deserve it.



T H E
FARMER'S MAGAZINE.

S E P T E M B E R, 1779.

A DISSERTATION *on the Progress and present State of*
AGRICULTURE. [Continued.]

A S I A.

HAVING travelled through America and Africa, it remains for us to describe Asia and Europe, which we will endeavour to do so as to produce much advantage to our readers, as well as amusement. Practical observations can in this circuit but seldom happen in the direct paths of agriculture; but the general subjects of humanity, customs, and policy, will, in some measure, we hope, make amends for that deficiency, wherever it may be. Every thing necessary to form the mind and cultivate the understanding, to socialize the habit, and dispose to virtue, and the other moral and christian duties, will well become the author of this work, or the editor of the *Farmer's Magazine*. Brought up in the highest notions of religious and moral good, he is sorry if, at any time, speaking as a citizen of the world, he has paid little respect to persons. A slave from Africa, considered as a man, as a being of the Almighty's will and power, and as a link in the great chain of the universe, he considers in a light not inferior to a Lord; titles and splendour carry no further weight with him, than as they tend to the general good and welfare of mankind. Sitting in his easy chair, and passing in a delightful vision through every country, he becomes the citizen of each, and every country therefore is his own. Slave to no prejudices but the prejudices of education, which early taught him to deal by all men as he would wish they should deal by him, he cannot help detesting injustice, whether simply

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the act of man to man, or between contending parties of the world at large.

Politics, above all things, he has avoided; and he hopes none of his readers can, in a review of the American history, say which side of the question he is of. He has an opinion of his own; and it was not his design to interest mankind in war and tumult, but rather to strew the gentle arts of peace, and change the swords to reaping-hooks.

In America, we see a new world rising, perhaps superior to the old one. In Africa, we deplore the resemblances of men, of God's creatures, under the deplorable situations of savage ignorance among themselves, and oppressive cruelty from nations who boast of civilization. Let us hasten from the solemn melancholy scene, and direct our course to other scenes and shores.

ASIA, one of the four quarters of the world, and next largest to America, is separated from Europe by the Archipelago, the Black Sea, and the Lake Mæotis; and thence from the river Don, by a line, to the river Oby in Muscovy: the Red Sea parts it from Africa; the South Sea is between it and America; the Indian Ocean bounds it on the south, and the Frozen Ocean on the north. Its breadth from the Equator, perhaps to the North Pole, is about 4,300 miles, and its extent from east to west about 4800.

Asia is divided into the following states and nations:

	Nations.	Chief Towns.
Tartary.	Russian,	Toblofski,
	Chinese,	Chynian,
	Mogulean,	Tibet,
	Independent	Samarcan,
	China,	Pekin,
Turkey, in Asia.	Indostan, or Mogul's Empire,	Delhi,
	India,	Siam,
	Persia,	Isfahan,
	Part of Arabia,	Mecca,
	Syria,	Aleppo,
	Holy Land,	Jerusalem,
	Natolia,	Smyrna,
	Diabec, or Mesopotamia,	Bagdad,
	Turcomania,	Erzerum,
	Georgia,	Tchis.

All the islands of Asia, Cyprus excepted, are situated in the Pacific or Eastern Ocean, and the Indian Seas, the principal of which are:

Islands.

<i>Islands.</i>	<i>Towns.</i>	<i>Trade with, or belong to.</i>
The Japanese Islands,	Jeddo,	Dutch,
The Ladrões,	Guam,	Spain,
Formosa,	Tai-ovan-fou,	China,
The Philippines,	Manilla,	Spain,
The Moluccas,	Victoria Fort,	Dutch,
The Banda Isles,	Lantor,	Dutch,
Amboyna,	Amboyna,	Dutch,
Celebes,	Macassar,	Dutch,
Gilolo, &c.	Gilolo,	Dutch,
The Sunda Isles,	Borneo,	All nations,
	Sumatra,	English and Dutch,
	Java, &c.	Dutch,
The Andaman Isles,	Andaman, Nicobar,	All nations,
Ceylon,	Candy,	Dutch,
The Maldives,	Caridon,	All nations,
Bombay,	Bombay,	English,
The Kurile, and those in the sea of Kamtschatka, lately discovered by the Russians,		Russia.

As Asia exceeds Europe and Africa in size, so also does it in fertility; the fruits, gums, balsams and spices, drugs, gems, and manufactures, are valuable, and distributed into every part of the world; the fineness of its silk and cottons is every where celebrated and esteemed: but of these things we shall be more particular under the separate heads of each country.

ASIATIC TARTARY. The country known by the general name of Asiatic Tartary is bound by the Frozen Sea on the north, by the South Sea on the east, by China, India, Persia, and the Caspian sea, to the north, and by Muscovy on the west.

<i>Grand Divisions.</i>	<i>Sub-Divisions.</i>	<i>Chief Towns.</i>
North-East Division,	{ Kamtschatka Tartars, { Jakutskoi Tartars,	{ Kamtschatka, { Jakutskoi,
South-east Division,	{ Bratski, { Thibet and Mongul Tartars,	{ Bratskoi, { Poin, Kudak,
North-west Division,	{ Samoieda, { Ostiack,	{ Mangasia, { Kortskoi,
South-west Division,	{ Circassian and Afracan Tartary,	{ Teski, { Afracan,
Middle Division,	{ Siberia, { Kalmuc and Usbec Tar- tary,	{ Tobolski, { Bokharia, Samarcand.

The inhabitants of this country, the ancient Scythia, do now, and always have lived, by hunting and fishing, and upon the milk of their flocks and their mares. They have an equal aversion to cities, a sedentary or civilized life, and for the cultivation of corn and agriculture. Their origin, their customs, and their manners, are equally ancient; for we cannot trace the former on account of their wandering and sequestered mode of living: They have lived as their forefathers lived, and the resemblance between men of the remotest ages and the present race of Tartars, will be obvious and striking.

These people have in general been followers of the Grand Lama, who resides in a temple at Putali, a town situated in a district which partly belongs to Tartary, and partly to India.—This extensive region, where mountains rise one above another, is called Boutan by the inhabitants of Indostan, Tangut by the Tartars, Tfanli by the Chinese, Lassa by the Indians beyond the Ganges, and Thibet by the Europeans.

Their religion appears, from monuments of undoubted authority, to be of above three thousand years' standing, and is founded on the existence of a Supreme Being, and the sublimest principles of morality.

It has been generally imagined, that the followers of the Lama believe him to be immortal; that in order to maintain the deception, this divinity never appears but to a few favourites; that when he receives the adoration of the people, it is always in a kind of tabernacle, where a dim light shews rather a faint representation, than an exact resemblance, of that living god; that when he dies, another priest is substituted in his stead, as nearly of the same size and figure as possible; and that by means of these precautions, the delusion is kept up.

A sagacious philosopher has lately removed this prejudice. It is true the great Lamas seldom shew themselves, the better to maintain that veneration they have inspired for their person and their mysteries; but they give audience to ambassadors, and admit princes who come to visit them. But if their person is seldom to be seen, except on important occasions, or on great festivals, their picture is always in view, being hung up over the doors of the temple at Putali.

What has given rise to the fable of the immortality of the Lamas is, that it is a tenet of their faith, that the holy spirit, which has animated one of these pontiffs, immediately upon his death passed into the body of him who is duly elected to succeed him. This transmigration of the divine spirit is perfectly consonant to the doctrine of the metempsychosis, which has always been the established system in those parts.

The Grand Lama is purchased, when in his childhood, from some healthy peasant, and instructed by the inferior Lamas in the great part he is to act. He is dieted by them in a sumptuous prison, and is perhaps the most unhappy person in the empire.

The religion of Lama made considerable progress in early times. It was adopted in a large part of the globe. It is professed all over Thibet and Mongolia; is almost universal in Greater and Less Bucharina, and several provinces of Tartary, and has some followers in the kingdom of Cassimere in India, and in China.

The wandering Tartars, having no settled religion, generally conform to that of the country where they chance to border. In Siberia, many follow the Greek church, and there are some Christians in Circassia. Some profess the Mahometan, and some the Gentoo religions, while others are Pagans, each man having his own Deity, though all acknowledge one Supreme Creator of heaven and earth.

It was to oppose the hostile depredations of the Tartars, that the famous Chinese wall was built, near 300 years before Christ; but this did not prevent their conquering China.— This conquest, however, only added to the Chinese dominions, for they assumed their manners and customs.

The climate, air, and soil, vary exceedingly, as must naturally be supposed in such an extensive tract of country, the northern parts being nine months covered with snow, and consequently extremely barren; the northern parts of Siberia are dreadful, from the unwholesome marshes, uncultivated mountains, and impenetrable forests; but in the southern parts, the air is tolerably mild, and the soil may be cultivated with success. In Astracan, and the southern parts of Tartary, the soil is very fertile, and on a proper application of the inhabitants, yield great increase. The summers are generally dry, and they are often pestered with swarms of locusts.

The mountains, woods, and deserts of Tartary, abound in venison, game, and wild fowl. Here are likewise wild mules and horses: the latter, when caught, are strong and fit for the saddle; but the Tartars seldom take them till they are five or six years old, so that they generally continue very headstrong. Besides these, there are camels, dromedaries, wild boars, tigers, leopards, several kinds of deer, a species of goats with yellow hair, squirrels, foxes, an animal called hautehan, resembling an elk, another called chulon, or chelison, which seems to be a sort of lynx, a little creature called tael-pe, and marmots. The last of these animals are chiefly found on the hills in Mongolia, where

where they burrow under the broad spreading leaves of the rhubarb plants; to the growth of which it is said their dung, and their casting up the earth about the roots, in order to form their burrows, greatly contribute.

The rivers and lakes abound both in fish and fowl, and near Astracan there is a bird, termed by the Russians, baba, something larger than a swan, of a grey colour, and has a broad bill, under which hangs a bag capable of containing about a quart: when in want of food, he keeps near the edge of a river, and on seeing a shoal of small fish, spreads his wings, and drives them into a shallow, where he fills his bag, and going ashore, eats some, and carries the rest to his young. There are several other birds in Tartary, some of which are very beautiful, particularly one called the shouhar, which is entirely white except the back, wings, and tail, and these are of a very fine red. The flesh is very delicious, and it is said that the shouhar is often adorned with precious stones, and presented to kings as a mark of homage and respect.

The fertile parts of Tartary, especially when cultivated, yield excellent fruits, particularly grapes, which are very large. But the common productions are, some wheat, rice, barley, several kinds of roots and pulse, coffee, aloes, rhubarb, and various other drugs. In some places the grass grows spontaneously to an amazing height, but the Tartars have no idea of making it into hay. Their method of procuring fresh grass in the spring, is, by burning the long dry grass, the ashes of which, being an excellent manure, produce grass in plenty.

The commerce and manufactures of Tartary are not very considerable, though of late years the latter have been constantly improving, particularly in Astracan; where the inhabitants, instructed by some French refugees, and other mechanics, and husbandmen, whom the court of Russia sent there, have planted vineyards, and make several kinds of wines.—Mulberry-trees are also planted in order to set up a silk manufacture. They also carry on a considerable trade with Persia; to which they export red leather, woollen and linen cloth, and some European manufactures. The principal articles of traffic in Tartary are, skins, beavers, rhubarb, musk, and fish.

The Tartars in general lead a wandering life, setting out in the spring, frequently ten thousand in a body, preceded by their flocks and herds; and when they come to an inviting spot, they pitch their tents, and stay there till all the grass is consumed, when they again set forward in search of another fertile plain. Some of them live in huts half sunk under ground, the fire being

ing in the centre, with a hole just over it in the roof to let out the smoke, and round it are benches to sit or lie upon. In the northern provinces, as soon as the winter sets in, every family burrows itself under ground, nor do they emerge again till the succeeding spring. Their favourite food is horse-flesh, which they boil and roast, and sometimes large pieces of it are smoked or dried in the sun; but they never eat it raw, as is commonly believed, unless compelled to it by necessity. On long marches, all their provisions consist of cheese, or rather dried curd, made up in little balls, which they pound, and mixing the powder with water, drink it. Some of the tribes are far more filthy than others, but in this particular none exceed the Kamtscharkans, who are said never to wash their hands or face, nor cut their nails: they eat out of the same dish with the dogs, without ever being washed, every thing about them stinks of fish, and they never comb their heads. Both men and women plait their hair in two locks, binding the ends with small cords. If any hair happens to start out, they sew it down with thread, to make it lie close, by which means their heads swarm with vermin, which they scrape off with their hands.

The Tartars have very little money except what they get from the Russians, and their other neighbours, in exchange for cattle; and with this they sometimes buy meal, but it is more frequently expended in cloths, silks, stuffs, and other apparel for their women, whom they likewise purchase with cattle.— They are not very nice in their marriages, it not being uncommon, in some of the more barbarous tribes, for a father to marry his own daughter; and there is very little difference made between the child of a concubine or slave, and that of a wife, except that among the heads of tribes, the wife's son is always preferred in the succession. But what is still a greater hardship, every wife, when turned of forty, is degraded to the menial offices of a servant, and as such must wait on the young wife who succeeds to her place.

The Tartarian dress is very simple; that of the men consists of a short jacket, with narrow sleeves, made of deer-skins, with the fur outward, and trowsers and hose all of one piece. Most of the tribes shave their heads, except a lock behind, which is plaited, and hangs down their backs. They wear a cap turned up with fur, adorned on the top with a tassel of red silk. The women are dressed in loose gowns, ornamented and bordered with different colours; they all wear ear-rings and their hair plaited in several locks. Those of most consequence among them wear silk garments in the summer.

[To be continued.]

ART. II.

ART. II. *On the Culture of Asparagus.*

From Mawe's and Abercrombie's Universal Gardener and Botanist.

[Concluded from page 234.]

Method of making the Bed, planting the Roots, and Culture.

IN the situation and exposure before described, mark out a trench for the hot-bed, twelve or fourteen inches wider than the intended frames, and of a proportionable length, whether for one, two, or more, and dig out the cavity one spade deep, then wheel in the dung, with which form the bed the full width and length of the trench, observing, if only for a single three-light frame, to make the bed a yard high; but if for two or more such frames in one range, two feet and half depth of dung is sufficient, working the whole upright and firm in the usual way.

When the bed is thus formed, let it be directly earthed at top for the reception of the plants, with finely broken earth six inches thick, to the full width and length of the bed, and rake the surface level and smooth; this done, immediately proceed to place the roots, for no time must be lost in Asparagus hot-beds in waiting for the temperature of the heat.—Previous to planting the roots, mark out on the surface of the bed, the exact width and length of the frames, so as to have a clear space on each outside of six inches width, to receive the banking earth against the outside roots, &c. as before-mentioned; then begin at one end, and raise a small ridge of earth crossways upon the surface, about six inches high, against which to lay the first row of roots; then having the roots, which are not to be trimmed, lay the first course close against the above ridge, and entirely upon the surface of the bed, with the crowns upright, and as close to one another as you can possibly place them; and when one course or row is thus placed, lay another against these in the same manner, and so proceed, laying them one against another, as close together every way as you can possibly crowd them from one end of the bed to the other, without laying any earth between or about the fibres, for these will soon strike down into the earth of the bed, being careful to place all the crowns of such an equal height, that the whole may form, as it were, a level surface, keeping the whole rather within the measure of the frame, for they will unavoidably swell out a little on the sides; observing, if more frames than one are intended for the same bed, then at the termination of the length of each frame, raise a cross ridge of earth,

earth, as at first, about six inches in height; so proceed laying the plants, as before, and when all the roots are thus placed the whole length of the bed, directly bank up some earth on each side and end, as above hinted, against the outside roots, raising it an inch higher than the crowns of them, then cover the crowns all over evenly with finely-broken light earth an inch deep, which finishes the work for the present until the buds appear, which see, for the roots must not till then be earthed deeper, nor the frame placed upon the bed, till the violent heat has subsided, because it would confine the burning steam, and occasion the bed to heat too vehemently, to the destruction of the plants.

In making the above beds, many of the London gardeners, to save dung, instead of making the beds a foot wider than the frames, as above directed, make them only the exact width of the frame; so to secure the outside roots, and for the support of the frame, raise a bank of earth quite from the ground, six inches broad, drawing it in gradually to the top, banking it close against the sides of the bed, and that of the outside roots, raising it an inch higher than the crowns of them, so earthing them all over the top an inch deep, as before observed; which method of banking quite from the ground, is very effectual in preserving the temperature of the bed, by defending the dung from driving rains, snow, and piercing winds.

As soon as the beds are made and planted in either of the above methods, then, in order to judge of the temperature of the heat, it is proper to thrust some sharp-pointed sticks, two feet long, down betwixt the roots into the dung of the bed, and by drawing these up daily, and feeling the lower end, you will be able to judge of the degree of heat, whether too violent or weak, which is to be regulated accordingly.

The beds being made and planted, the roots will soon after send forth fresh fibres into the earth, and even, in time, into the very dung, and the buds of the Asparagus will begin to appear in about three weeks; but till that period, as the heat will be very strong, the bed is to remain unframed and uncovered, except being occasionally defended at top with long litter or garden mats, from violent rains, snow, and severe frosty weather, observing, however, that until the buds appear, moderate rains, frosts, &c. can do no damage; therefore, use only slight and occasional covering, as above, just to preserve the crowns of the plants until the heat of the bed is become quite moderate, for at this period too much covering would increase the heat to a violent degree, and scorch the roots,

which in strong beds we must, at any rate, be particularly watchful to guard against; the temperature of heat must therefore be every day examined by the trying sticks, and if it is found so vehement, that you judge the roots are in danger of scorching, the remedy is, to bore with a large rake-handle, &c. the sides of the bed, quite through, in several places, both in the dung, and betwixt the top of the dung and the earth, that the rank steam and burning quality may evaporate at the holes; at the same time the free air will have access, and in two or three days the bed will be reduced to moderate temperature.

When the Asparagus begin to appear, they are then to have their final earthing of four or five inches depth of more mould all over the crowns of the roots, and the frames and glasses to be put on.

At this period, i. e. that of the first appearance of the buds, prepare some light, rich, finely-broken earth, sufficient to mould them above the depth; at the same time, in order to secure the outsides of the said final earthing, it is proper to form a sort of border, or impalement, round the top of the edges of the bed, four or five inches high, which is done either with a thick straw-band, or by raising the outside banking an additional four or five inches, either of which, as just observed, is necessary, not only to secure the sides and ends of the earth, but also to support the frame a due height, the bottom of which should stand nearly as high as the surface of the final covering of earth, so as there may be full scope between the earth and the glasses for the buds to shoot. But in respect to the above impalement round the top of the bed, that instead of forming it by banking higher with earth, it is more customary to fix a wreath of straw-bands round the top of the first banking, to serve that purpose; this the London gardeners call wreathing the bed. It is done thus: when the buds first appear, make a large straw-band or rope, four or five inches thick, and long enough to go round the bed; then upon the top of the banking, exactly in the place where the frame is to stand, place this band round singly in a neat and regular manner, fastening it with pegs stuck through the sides of it into the earth, and when this is fixed, directly earth the buds as high as the said wreath, or about four or five inches deep, as above noticed, so as there may be now in the whole, about five or six inches depth of earth all over the crowns of the plants; then, if the heat of the bed is become of a moderate temperature, it is proper to put on the frame, resting it upon the top of the above wreath or straw-band; or, in default of
this

this, set it immediately on the top of the banking, having been previously raised as above; after this, if you are anxious to have long buds, as is the case with the market gardeners, you may lay an inch depth of more earth, so as to make the whole full six inches thick.

The bed being now finally earthed and framed, and the heat become moderate, the glasses or lights are to be kept constantly upon the frame, which on nights should be covered with mats, or dry long litter, but must be uncovered every day, except in uncommonly severe weather; for it is of importance to admit as much light and sun as possible, to promote a green colour in the tops of the buds; and as to the admission of fresh air, if the heat is moderate, the glasses need only be shoved a little open in fine days, especially if you require the plants to be drawn up quick; but by admitting a larger portion of air, the buds rise slower, and will acquire a larger size and greener colour, on which consideration some, in the spring-made beds, take the glasses entirely off a few hours in fine mild dry days, particularly when the heat is considerable at the first appearance of the buds after the bed is framed.

At this time also, examine the temperature of heat in the bed. When it has been made about three weeks, if it is but a small bed, only for one or two three-light frames, the heat will begin to decline considerably, which should be renewed by a lining of hot dung applied to the sides: do not omit this, particularly when the buds begin to appear through the last covering of earth, if you should see occasion, though beds of more considerable length seldom require lining till after the first breaking or gathering of the buds; then adding a good lining, it will maintain the bed in due temperature fifteen or eighteen days longer, which is as long as the roots continue yielding any tolerable produce.

In about five or six weeks after the bed is made and planted, we may expect Asparagus fit to gather; when the buds are from two to four or five inches high above the earth, they are of the proper size.

The method of gathering them in hot-beds is, by breaking the buds off near the root, and is done by thrusting the finger and thumb into the earth, and by a gentle twist the buds will readily break. For the supply of a family, the buds may be gathered every other day, or oftener, if necessary; but for market, the gardeners seldom make more than three principal gatherings, or breakings, from the same bed, that is, one every week for three weeks, and the second breaking is generally the

best, which, in Covent-garden market, is sold from ten to thirty shillings a basket, each basket containing about 300 buds, and which of those they call ware, are often very large and fine for the season. But the Rev. Mr. Hanbury, in his *Body of Gardening*, says, the forced Asparagus brought to Covent-garden market is scarcely bigger than wheat-straws, which he attributes to the ignorance of the gardeners, in which, however, as well as in the true culture of forcing Asparagus, that gentleman is greatly mistaken; for the London gardeners having considerable practice in that article, many of whom force upwards of a hundred lights annually, they generally excel most others in the culture of forced Asparagus, and supply the markets therewith in great perfection, especially from about Christmas till the coming-in of the natural crops. Indeed, in the best-managed beds, there will, besides the main crop of large buds or ware, be many of middling growth, and many small buds or sprew; so the gardeners sort them accordingly for market, into ware, middlings, and sprew, the latter of which is sometimes not much thicker than large straws.

ART. III. *Remarks on BANKS and BANKING.*

[From POSTLETHWAITE'S DICTIONARY.]

BANKING is a traffic or commerce in money, which is remitted from place to place, from one city to another, by correspondents, and by means of bills of exchange.

The word Bank is said by some to be derived from the Italian *banca*, which comes from *banco*, a bench, because formerly in all the trading cities of Italy, banking was publicly exercised in open places or exchanges, where all those who carried on that trade, had seats or benches, on which they used to sit down to reckon their money, and write their bills of exchange.

Some authors add, that, when a merchant happened to fail, they used to break his bench, either as a mark of infamy, or to put another in its stead; and they pretend, that, from the breaking of the bench, come the words Bankrupt and Bankruptcy.

In France, it is not requisite that a man be a merchant, in order to carry on banking: for that trade is permitted to all sorts of persons, and even to foreigners. Hereby is meant foreign banking, or dealing by exchange.

In Italy, the trade of banking does not derogate from nobility, especially in the Republics; which is the reason why most of the

the younger sons of the quality apply themselves to that employment, in order to support their families. And, indeed, it is certain, that the noblemen of that country, and particularly of Venice and Genoa, are those who for many ages past have been the chief bankers in France, as well as in other countries of Europe.

It cannot be doubted, but that the beginning of traffic was by exchanging one commodity for another, as men could best suit each other's occasions.

But the necessities of men being so various and different, in respect of the quantity and quality of requisites, money was instituted as the most convenient medium for commerce, whereby people might procure whatsoever they stood in need of in quantities, according to their exigencies.

This changed the term of bartering into that of buying and selling; yet all trading, at length, results into nothing but a general barter. For he who sells any thing to receive money for it, purchases again such things as he requires with the same money.

Money then becoming the principal engine for circulating the bulk of commerce, its application to trade is proper to be considered.

Money is used in the minuter kind of dealings, as retailing, &c. when it is commuted for all kinds of labour, and to furnish the necessary provisions for daily use. This requires its being divided into the smallest denominations of the species, as into shillings and pence; so that this way of dealing is not capable of being transacted by bills and assignments.

Money is also employed in the more extensive and wholesale way of trading, wherein large sums are negotiated; and this occasions frequent payments from one trader to another. In which payments, although, strictly speaking, ready cash be required, as often as contracts are made; yet, as commerce in general consists in the mutual dealings and transactions of many traders, it may often so fall out, by means of interchangeable debts and credits, that divers traders may satisfy each other's occasions, without making any payments in specie, by transferring their debts to each other: whence came that useful accommodation in traffic, of giving bills and assignments, which is commonly called paper credit. For the clearer understanding whereof, we may give the following instance of the mutual dependencies of trade;

The Turkey merchant, we will suppose, buys cloth of the clothier; the clothier buys wool of the Spanish merchant; the Spanish merchant buys sugar and ginger, &c. of the West-India merchant;

merchant; the West-India merchant buys stuffs and silks of the mercer; the mercer buys wrought silk of the silk-weaver; and the silk-weaver buys silk of the Turkey merchant; and each of these deal to the value of 200*l.* or upwards. In this case, all these transactions may be carried on without money. The Turkey merchant gives the clothier a bill for 200*l.* on the silk-weaver; the clothier gives the same bill in payment to the Spanish merchant; he gives it to the West-India merchant; he again gives it to the mercer; and lastly, the mercer delivers up the bill to the silk-weaver, in discharge of so much of his debt to him: and thus six traders are all satisfied their respective debts, without the actual payment of any money; which likewise illustrates that trade is but a general barter.

But, when such mutual conveniencies do not occur, traders usually receive their money in specie, and so pay it from one to another.

Yet this way of payment is attended with many inconveniencies, as the trouble in counting of the money, hazard in securing it from the attempt of robbers, and loss from trusting it with unfaithful servants: for the prevention of all which, cities of large commerce have very naturally introduced the use of banks.

A bank then may be properly defined a common repository, where many persons agree to keep their cash, to be always ready at their call or direction.

We are farther to consider, that there are banks of various kinds, and different in the nature of their constitutions and establishments. Some are instituted wholly on the public account, and put under the direction of the magistrates, who are obliged to take such care of the management, that the money or bullion deposited therein, shall always be kept for the use of the proprietors, and shall never be let out for profit or advantage; of this kind is the famous bank of Amsterdam, which is administered with so great a strictness and fidelity, that it is said, a magistrate, who was one of the directors of it, was sentenced to death, for making use of a sum of money but for one day, though he paid it in the next. Wherefore, from an opinion the proprietors entertain of the equity of its administration, they judge themselves so secure, that their money lies always ready to answer their demands, that they seldom draw out large sums, but make their mutual payments, by transferring the sums from one man's account to another: and from this great ease and convenience, it is come to pass, that payments made by assignments on this bank, are valued from three to five and six per cent. above the payment

ment of money in specie, which difference between the bank and current money is called the *Agio*.

A second sort of banks is such as consist of a company of monied men, who, being duly established and incorporated, by the laws of their country, agree to deposit a considerable fund or joint stock, to be employed for the profit and advantage of the whole society, in all those ways of dealing, which are compatible with the nature of such an undertaking; as borrowing upon their own credit, and lending money upon good securities; buying and selling bullion gold and silver, and foreign specie; discounting bills of exchange, or other secure debts; receiving and paying the cash of other traders: Of which kind is the bank of England.

A third sort is the banks of private men, or partnerships, who deal in the same way as the former, upon their own single stock or credit; and such are the Lombard-street, or other bankers, as they are called.

As to the first kind, it is certain, that nothing can be so infallibly safe, as where the value is always kept ready in specie; and here also the ease and security of traders are effectually provided for, in the receipts and payments of their money: but yet this kind of bank is so much the less useful to the public, as it can neither be helpful to the government on emergencies, nor to traders in accommodating them with money.

The security of the second kind consists in the certain knowledge of its fund, or stock, the solidity of its institution, and the incorruptible fidelity of its management; wherein it is always the interest of the concerned to give the public the utmost satisfaction: and in this respect, the bank of England must be secure beyond all apprehensions to the contrary, as well by reason of the great sums they have lent the government upon the faith of a British parliament, which is sufficient always to keep them above all suspicion of failure, as from the known skilful and profitable management of those who have been successively concerned in the direction. Besides, as an incorporated body, they are not, like private men, subject to death. And, as this kind of bank has all the conveniencies of the former, it has also this advantage beyond it, that its capacity of lending money is an invaluable accommodation to the community, since it will always have a tendency to the keeping low the interest of money, and being an effectual and permanent check to usury, which is the greatest bane to our trade and navigation.

The nature of the third kind is, in all respects, the same with the second, but much short of it in point of security, because
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the ability and integrity of private men in trade, are things whereof the public can have no certain assurance, being only founded upon opinion, and the appearance that men make in the world: and, as it is very natural for private men to be tempted with specious views of profit and advantage, so they are frequently induced to launch out beyond the power of their own stock, and to hazard the estates of their creditors: whereby, when they come to sustain loss and disappointments in their dealings, they not only bring ruin upon themselves, but involve many others in the like calamity, who have intrusted them with the keeping of their money: of this we have seen but too many examples.

It must, however, be acknowledged, that the man of judgment and sagacity, as well as steady honour and honesty, may as securely be trusted in this capacity with the greatest treasure, as any body of people whatsoever; and that there are such gentlemen among those who are concerned in this way of banking, we have had large experience; and especially in that great time of famine (if we may so call it) whilst the money was recoining in King William's reign, when several of the private bankers, and to their eternal honour be it remembered, managed their affairs with such penetration and integrity, that they continued to make their payments, and maintained their credit, even beyond the bank of England at that time. Whence it is apparent, that private banking also is of great utility and convenience in trading cities; and, indeed, is as necessary a check upon the bank, as the latter is upon them, to prevent high interest, and exorbitant premiums of any kind, as well to the government as the public. By what has been said, it may sufficiently appear, that nothing but ready money can be a proper foundation for a bank; that the second kind is the most useful and extensive, to all the conveniencies of the public, and of commerce; and that its business is to keep the cash of traders, or others, to deal in bullion, exchanges, and discounts, and to lend upon securities, but upon none but such as are morally certain, and for short time of payment, or which, upon occasion, may be readily exchanged again for money: on the contrary, that such a bank ought never to purchase or lend money upon lands, as well because of the hazards of titles, as of the tediousness and uncertainty of repayments: least of all should a bank deal in merchandize, because of the risque of adventuring, the dubiousness of profits, and the length of time for returns: it ought, indeed, to be always strictly restrained from the buying and selling mercantile commodities, by reason of the great injury which
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might thereby arise to trade in general, from an uncontrouled monopoly.

It may be here requisite to take notice of that erroneous notion entertained by some, that banks and bankers engross the money, hoard it up, and hinder its circulation in trade; but, if such will consider this matter in its true light, they will easily be convinced, that the money lodged in banks, and in the hands of bankers, is the most constantly employed of any; for, though the specie should lie still till called for, yet the notes given out for its value are continually circulating; whereby it does abundantly more service to trade, than if the same lay dormant in private hands; and yet the necessities of the depositors are effectually answered.

[To be continued.]

ART. IV. *Mode of Farming pursued by a Member of the*
BATH AGRICULTURE SOCIETY.

Mr. SYLVAN,

WHEN I took my farm, which consisted of 115 acres, I found the arable undone by improper tillage, and the meadows worn out for want of manure. I will describe the farm as nearly as I can. The soil in general is composed differently, of mould, sand, gravel, and here and there clay. The farmer I succeeded was a sloven in the abstract, and so bad a ploughman, that he never cross-ploughed his land through incapability. It was an opinion of mine that the sooner I got my land in order the better; and that the first expence would be the lightest.

No. I. was a field lying near the house, tolerably clean and not wanting dung, found in a barley stubble without clover; this I planted with pease, and giving it a dressing of dung, I had a good crop. This was the year 1775, and the succeeding year I had a good crop of wheat, not indeed equal to my improved land, but little less than three quarters per acre. The year following the wheat, I summer-fallowed and turniped it, the course I afterwards invariably pursued. The soil was gravelly with some depth of mould.

No. II. was a coarse unkind piece of land, of a soil neither clayey or gravelly, but something between both, and which my men called chisley. This had been cropped with oats, and a very indifferent crop indeed; I dunged it in the spring, and planted potatoes on half, and sowed vetches on the other half;

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the crops of both were equal to my expectation, but the greatest advantage was the benefit the land received from the potatoes, by which it was mellowed so surprisingly, that I was resolved, contrary to my first intention, to sow the field with wheat, which yielded me only four sacks per acre.

No. III. had borne wheat, but the stubble was ploughed up for turnips, which afforded a little sheep feed, tho' not worth the expence. This was a good piece of land, tolerably clean, but wanted rest. The spring turning out favourable, I altered my intention, which was to have fallowed it and sown it with turnips, and therefore sowed it with barley at five ploughings; with the barley, three bushels per acre, I sowed a bushel of rye grass, 6 lb. of Dutch clover, and 6 lb. of black grass, without any broad clover; not that I know it to be a good method, but that I wished to lay it down for some years, being handy for feeding. The barley yielded me about $3\frac{1}{2}$ quarters per acre. As soon as the barley was off, I dressed this field with chalk and compost of dung and earth separately, the chalk about 8 waggon loads per acre, and the compost about 12 cart loads; I had the year following a most excellent swarth of grass.

No. IV. had been cropped with beans. This I sowed with wheat at three ploughings. After the wheat, I had it tilled and dunged for summer vetches, of which I had a most noble crop. When the vetches were off, I had it ploughed three times and sowed with wheat.

No. V. a Clover Lay, I sowed with wheat at one ploughing; it was very foul, and produced only about three sacks per acre. The year following it was turniped.

No. VI. was a rowetty coarse piece of pasture that had not been ploughed for some years. Here I sowed black oats; the produce was three quarters and half per acre; the next year it was summer-fallowed and sown with turnips.

No. VII. a mixture of sandy and gravelly soil, was from a wheat stubble summer fallowed, well dunged, and sown with turnips, as was also

No. VIII. which was drained and chalked. The turnips on both were remarkably good. No. VII. was the next year turned into a garden, and bore very large crops of potatoes, Windsor beans, carrots, cabbages, and parsnips, but a very few onions, which I apprehend was as much owing to want of care as any thing else; among the beans I tried some turnips, but they were not good, being in general worm-eaten, and sticky or stringy.

No. IX. part of which was an orchard, was also in grass: this I dunged well, and planted with beans, thinking to summer fallow

low for turnips the next year, but in this I altered my mind, and sowed winter vetches, which answered most incomparably well, cut for horses, and for feeding the sows and pigs. The beans produced rather more than four quarters per acre; they were hoed three times, which did them great good, but destroyed no couch. After the vetches, I summer fallowed for turnips.

No. X. was a meadow, which had been strangely neglected, a brook ran through it, and frequently overflowing, had given nurture to abundance of rushes. I ordered water furrows to be cut, sufficient to carry off all wet, and spread over the whole meadow wood ashes brought dry from a lime and brick kiln to the quantity of forty bushels per acre; I kept it close fed that summer instead of mowing it; in the winter, a little before Christmas, I dressed it well with dung, and the produce of grass answered well the expence; I cut full two tons per acre of excellent grass free from rushes.

[To be continued.]

ART. V. *On the Use of Drift Sand for Manure.*

MR. SYLVAN,

WHETHER you may think it worth while to insert the following experiment I cannot tell, but if you do give it a place, you will oblige your constant customer and friend,
I. R. B.

I HAVE a meadow and part of a common field lying near a brook that is often flooded, the bottom of the brook is a sharp gravel and sand, which in a crooked course are often thrown up so as to impede the current. I always had observed, that floods, so far from benefiting my meadow, were rather prejudicial, contrary to what is known and observed of some rivers where the overflowings enrich and make the grass better and more in quantity. It being necessary to clear the brook, and great quantities of stuff being brought to land, I was induced to try what effect it would have laid on my meadow, and my arable land being then young grass after white oats: this was about the 13th or 14th of October 1776. Accordingly it was thrown first out as much together as possible, near the banks of the brook, and after lying a day or two to drain off the wet, it was carted both on the meadow and the clover. I expected something from it to be sure, but to my great surprise it acted on my clover in a very extraordinary manner, producing a
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greater crop than I ever had before ; nor did it lose its effect on the wheat which followed the clover, having nearly two sacks more on an acre than I ever had before. On my meadow it acted better the second year than the first, and this year was very considerably benefited by it.

Thus I removed a troublesome nuisance, and in the room of it procured a considerable advantage to my farm. I need not tell you that I shall constantly pursue the same plan whenever the stream shall drive me down sufficient manure (as I now call it) for my purpose.

ART. VI. *On the benefit of Winter Vetches cut up for Horses or kept for Hay or Seed.*

Mr. SYLVAN,

I HAVE frequently observed a great quantity of vetches sown for sheep feed merely, but I cannot help thinking turnips and young grass would meet each other to more advantage and less expence, besides saving a crop so very beneficial as vetches (when they are a crop) will turn out. Clover and rye-grass come in easy, if they are sown with a crop that pays the expence, and the expence of grass seed is trifling : but it is not so with vetches ; the seed is often expensive, and the tillage an addition to that expence ; and when this is merely for sheep feed, and then destroyed, ploughed up in a slovenly manner, a few turnips thrown in perhaps at one ploughing, and wheat after them, the expence of tillage &c. cannot be repaid by the produce : whereas if these vetches were suffered to grow, the profit arising from them cut up green for horses and swine, made into hay, or kept for seed, would pay as well as a crop of corn, besides producing a good wheat season.

R. C.

ART. VII. *On the Construction and Use of a Machine for Raking the Ground when Summer Corn is gathered.*

[In a Letter to the Secretary of the Bath Society.]

S I R,

Piddletown, Dorset.

ABOUT three years since, I found some difficulty to get people to take up my lent or summer corn in the method usually practised in this county, that is, by forking the swarths into cocks or pooks, and raking the ground with hand-rakes by women. Men are generally employed in forking it. It occurred to me, whether an instrument might not be made to answer
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swer the purpose of raking it. I knew the Norfolk method of doing it, by drag-rakes, (as they are there called) drawn by men; but the men were wanted elsewhere.

I had often seen a Horse-rake, made for gathering together the couch-grass (*gramen canine*) upon fallow-lands; and knew a person who had used it for his mown wheat stubbles; but that being drawn from the end of the beam by the horse, dragging the ends of the teeth upon the ground, collected such quantities of weeds, grass, earth, and even stones with it, that nearly rendered the corn of no value; besides, it could not be used for close-mown stubbles at all. Having for many years used the Norfolk ploughs here, I thought a Rake might be so constructed, as to go upon the breast-work of one of those ploughs in the same manner as the plough itself is used. Having had one made nine feet and a half long, and the teeth six inches asunder, much curved, upon applying it in the place of the plough upon the breast-work, I found it answer exceeding well, except that, when it met with any considerable obstruction at one end, it drew the other end asslant; to remedy that, I took away the pillar (the part of the breast-work that the beam rests upon, and which is raised higher, or let down lower, to sink or raise the plough) and had another made to extend about a foot, or rather more, beyond the outsides of the standards, and from each end of the Rake brought a chain, made to let out or take up at pleasure, to each end of the pillar; this kept the Rake even and steady. To my great satisfaction, I found it answered even beyond my expectation: for by means of this breast-work, it could (like the Norfolk plough) be instantly set up, or let down, to the greatest degree of nicety; so that any stubble, whether cut very high, or very close to the ground, whether very full of grass or clover, or whether quite clean and bare, might with equal facility be raked by it; for the teeth being made very much curved, the lower part of the back of the teeth only rests upon the ground, and the points stand out of it; the weight of the Rake presses the teeth close to the ground, and the corn is gathered into the throat of the Rake, without the points of the teeth scraping the ground.

The teeth are made strong, to prevent their bending. I have found a Rake of the length above-mentioned very manageable; whether it would be better, if longer, must be left to future experiments. I was determined to this length, by the breadth of our gate-ways, being just wide enough to admit it through them without taking it to pieces. For persons who want to remove it to a distant part, two small wheels might be added,

to put on occasionally, at the ends, to free the teeth from the ground, as it is drawn upon the road. I am sensible, that if a wheel were fixed at each end, even when in its work, it would greatly lessen the friction, and the horse would draw it the easier; but it would make it the more complex, and, perhaps, not turn as well at the ends of the fields. My situation will not permit me to make many, or expensive experiments. I have had it in idea, to fix some kind of standard upon the head of the Rake, for a line, like the Norfolk plough-line, to come back to, that the man might guide the horse himself, and save the expence of a boy to lead him; but there are some objections against that. One horse, a boy to lead him, and a man to clear the Rake, will easily rake twelve acres of stubble in a day; and if two horses are taken in to the field, to be used alternately, twenty acres may be raked in the same time; but it is hard work for the man.

The manner of using it is thus:—The Rake being put upon the breast-work of the Norfolk plough, exactly in the same manner as the ploughs are, the horse draws it with the same traces, &c. (only in the plough two horses are used, and here but one) and being set into its work to a proper size, according as the stubble is long or short, the boy leads the horse across the ridges, the corn having been previously put into cocks or pooks by the forkers, (women I employ for that purpose now, as no rakers are wanted,) the man follows the Rake, and when it is filled, he speaks to the boy, who stops the horse, and at the same time puts him back a step or two; this is done that the man may the easier draw back the Rake a little, which frees the corn, then lifting it up, the horse instantly going on, he drops the Rake just beyond the ridge thus gathered together, following it, and when it is full empties it, &c. as before, going on to the end of the field, he turns and comes back by the part raked, and empties the rake adjoining to the other; by this means the raked corn lies in strait parallel lines across the field, and is, when dry, turned if necessary, gathered up, and carried away.

I am satisfied it might be used to rake upland hay-grounds, as well as all sorts of feed clover-lands.

It may not be amiss to mention, that the first Rake I made, the teeth were only three inches asunder; I soon found they were too close; taking, therefore, every other one out, I made another six inches asunder,—the holes in the other not being filled up, the teeth might, if necessary, be replaced, and then would, I believe, be near enough together to rake any gentleman's

man's lawn, which is kept pretty frequently mown. I hint this for their consideration. I will make no apology for this trouble—my intention shall plead my excuse.

I am, Sir, your humble servant,
GEORGE BOSWELL.

ART. VIII. *On the Culture of Cole-Seed.*

COLE-SEED is an article of considerable consequence in the quantity of oil it produces. There are three kinds of plants nearly similar to each other;—1st, of the cabbage kind; 2^d, of the turnip; and 3^d, of the navew. The stalk of the cabbage, and the root of the turnip, sufficiently distinguish them; the navew differs from the turnip, principally in the smallness and length of the root. All these sorts yield the oil called rape-oil; but the wild navew, or *hesperis sylvestris*, is the proper cole-seed plant, and yet all are cultivated. The seed is generally brought from Flanders for sowing; and as the seed sent over is often of a different kind, it is not uncommon to see one crop different from another: but still the wild navew yields the greatest quantity of seed and oil.

This plant is about four feet high, and of an irregular growth; the root is long, slender, and white, of a taste not very unlike a turnip, but rather warmer; there is, perhaps, no other difference between the wild and garden navew, than what is produced by culture.

The best navew, or cole-seed, is large, smooth, and of a fine bright colour; if it has been kept damp, and grown mouldy or musty, it is spoiled, and will be unfit for use; therefore, great care should be taken to preserve it dry; and the seed of foreign growth is to be preferred for vegetation to the English; and new seed is preferable to old.

The proper soil for cole-seed is deep rich land; no land will answer better than fenny or marshy land, which has been well drained; but it must not be wet, or subject to be overflowed, while this crop is on it.

The ground for the culture of cole-seed should be well prepared by a summer-fallow, like as for turnips, and the process afterwards will be similar in every degree as to sowing, hoeing, &c. as it will require to single out each plant to a proper distance a foot apart.

The cole-seed plant is of a hardy nature, and will not only resist the frosts of winter, but even vegetate in every open day, and oftentimes by the latter end of February, the fields where it grows will be well covered, and will provide a great supply
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of excellent food for sheep, for which purpose alone it is often cultivated in many parts of England; and for this reason, poor land is often preferred, and the land thus very considerably improved.

One disadvantage arising to sheep from the feeding them on cole-seed, will be the blowing them: this is an effect now and then produced, and requires a little care: let them first be turned in about the middle of the day, and only stay in about two or three hours; then drive them into a common or poor pasture; the next day, let them be sent in sooner, and stay in rather later, and so increase the time to the third, fourth, and fifth day; after this, let them be turned out at night for three or four days more, and let them be put in again early in the morning. This will prevent the cole-seed doing them mischief, and after this time nothing is to be feared.

The Cole-seed will be ripe, fit for cutting, about the end of June; and when fit to cut, it is not to be neglected: the proper time is known by the perfection of the seed-vessels; if suffered to abide too long, the pods will open, and the seed will be lost; and although all the pods should not be ripe at the time of cutting, yet much will grow perfect after it is cut, which is best done with a sickle as wheat.

It must lie till the whole is thoroughly dry, when it is to be threshed very carefully, either in a barn or in a field, on a large cloth or sheet; a little threshing will shake out the seeds. Several sheets joined together will be a very good floor for the purpose, and rather better than a barn, where the seeds might, by uniting with other corn, become mischievous.

When the cole-seed is cleaned, it is either fit for market or mill; the oil taken from it will turn to a very good account; and the cakes left after impression are made use of to feed calves, manure land, &c.

ART. IX. *Cure for the Hooping-Cough.*

THE Hooping-Cough is a disorder which often baffles the prescriptions of physicians, and not unfrequently undermines the constitution. Change of air, the general cure mostly to be depended on, I have known to fail—and the following to succeed, even after that has been tried.

Rub the juice of garlick well into the spine or back bone, from the neck downwards, before the fire, every night for three nights; after rubbing in this juice, let the patient be put to bed, wrapped in blankets.

There is no hazard or mischief can ensue, as the remedy is perfectly safe and innocent.

T. L.

ART.

ART. X. *On the Bite of a Mad Dog.*

ALTHOUGH the mercurial process has been published in the magazines and news-papers, as a prophylactic, or safeguard against the bad consequences from the bite of a mad dog, it has not been sufficiently attended to, as we frequently hear of people trusting to bathing in salt-water and nostrums, to their fatal costs: It can, therefore, not be useless to repeat it at this time of the year, when accidents of this kind do frequently happen, and to inform the public, that, during the time of my attendance as physician at the London-Hospital, I treated many under these circumstances with this process, and never heard that any came to harm. I recollect an apprentice of about fifteen, bit and wounded by a mad dog, who was treated with this method, did well, and is grown a stout man; a companion of his being bit by the same dog, at the same time, was sent to the salt-water, but died of the hydrophobia six weeks after.

This case, it should seem, lessens a good deal the difficulty of believing, that Dr. Layard and Dr. Hill have cured two persons of the hydrophobia with mercury, as was published last year; and what a French surgeon affirms, of his having treated numbers at Pondicherry, bit by mad dogs, with mercury, with constant success, and cured one who had the fear of water already upon her. It is to be hoped, that future practice and experience will settle this matter so, that a certain cure may be established for this dreadful disease.

The process is as follows, viz.—Let the wounded part, and all about it, be scarified, and let it bleed till it stops of itself; then rub into the wound, and about it, a drachm of mercurial ointment, or more, according to the magnitude of the wound, and cover it with a mercurial plaister.

At night, the patient should take four or five grains of calomel, and some manna and salts the morning following; the next morning he should go into the cold-bath.

Thus the mercurial ointment should be rubbed in night and morning; the calomel taken every other night; the purge the next morning, and the cold-bath used the intermediate days.

This regimen pursued a fortnight will put the patient in a state of safety.

I would farther propose, to make use of the mercurial fumigation, when the hydrophobia has actually taken place, applied to the fauces, which seems to be the principal seat of the infection.

J. ANDREA.

ART. XI. *Method to discover when Wine is adulterated.*

PUT some of the wine you want to try into a long narrow phial, and with your finger on its mouth, gently invert it into a tumbler of water. If the wine is pure, it will continue, after removing your finger, suspended in the phial; but if adulterated, you will soon perceive the mixture begin to come out, until nothing remains in the phial but the spirits, and a small portion of pure wine, if any be used in the composition. The mixture, by being heavier than the water, will settle at the bottom of the tumbler; and having procured this, by pouring off the water, any chemist or apothecary will decompose, and tell you the ingredients.

ART. XII. *Queries respecting Cow-Clover, &c.*

Mr. SYLVAN,

YOUR inserting the following queries will much oblige your most humble servant, A FARMER.

Cow-Clover, Cow-Grass, Cow-Wheat.

Are these the same, or different plants?

If different plants, what are the botanical names of Cow-clover and Cow-grass?

Can the seed of Cow-wheat be had at the seed shops?

I can find no account of Cow-clover or Cow-grass in Sir John Hill's British Herbal.

Sir John recommends Cow-wheat as being perhaps preferable to all the foreign grasses cultivated here for the use of agriculture.

Some account of these grasses from any of your correspondents would be very acceptable.

ART. XIII. *List of the Fairs in England and Wales, in the Month of October.*

1. **B**racknell, Bromsgrove, Culmstock, Dinafmondly, Hawerden, Katherine-Hill, Redruth. 2. Aberguilly, Appletre-wick, Baldock, Beccles, Bolton (Lancashire) Brading, Braintree, Bridgewater, Buckingham, Budworth, Builth, Burgh, Cerne-Abbey, Colehill, Croydon, Daventry, Devizes, Downton, Dudley, Eastrey, Frodlinham, Hambledon, Helmsley-black-moor, Hingham, Holf-worthy, Howden, Knighton, Ledbury, Lewes, Liskeard, Malling, Naland, North-Allerton, Nottingham, Peterborough, Plymouth, Retford, Rothbury, Rudham, Sherstone, Shrewsbury, Stafford, Swinehead, Tarring, Warborn, Wendover, Woodstock. 3. North

North-Tawton, Nottingham, Pentraoth-Mon, Workop. 4. Macclesfield, Malham, Nottingham, Ubley. 5. Druslwyn, Inglewhile, Lansadwin, Llaneliom, Langport, Lanvyllyn, Leighton (Huntingdonsh.) Yarborough-Castle. 6. Blackboys, Blyth, Cayo, Gaywood, Market-Rafen, Sherborne. 7. Billericay, Bury St. Edmond's, Stockbridge. 8. Challock. 9. St. Albans, Abergely, Caerphilly, Carmarthen, Dolegelly, Hartlepool, Hodnet, Yarm. 10. Aberconway, Barnsley, Basingstoke, Bedal, Blockley, Brent, Bridport, Buckland (Somersetshire,) Charlbury, Chester, Chichester, Cockermouth, Coln, Corby, Critch, Deal, Eastbourne, Elham, Falmouth, Fazely, Fenny-Stratford, Gosport, Great-Thurlow, Hadleigh (Suffolk,) Hallingden, Hay, Higham-Ferrers, Highworth, Hull, St. Ives (Huntingdonshire,) Kegworth, Kettering, Kingfland, Lancaster, Lanvichangel, Lavenham, Leatherhead, Leicester, Lenyher, East-Looe, Malton, Marden, Milverton, Market-Deeping, Mathry, Mildenhall, Mitchel-Dean, Moreton, Newhaven (Suffex,) Norton, Otterton, Ower-Mayne, Penkridge, Pentre, Pontypool, Rofs, Rushlake-Green, Selby, Sheepwash, Shefford, Shouldham, Sittingbourn, Sleaford, Smarden, Solyhull, South-Brent, Steyning, Stony-Stratford, Stortford, Stow (Lincolnshire) Tavistock, Tewksbury, Thame, Tiverton, Torrington, Trewenn, Uxbridge, Watlington, Wells, Weyhill, Withyham. 11. Aldermaston, Bedal, Bedford, Blackheath, Burnley, Lyme, Monckton, Malton, Sellinge, Wragby. 12. Caxton, Ditching, Hitchin, Northorp, Sevenoak. 13. Lymington, Rackham, Rhos-Fair, Wigan. 14. Haworth, Sarr, Tracette, Wells. 15. Ashover, Brentwood, St. Mitchell (Cornwall.) 16. Alphington; St. Asaph, Castor, Llemuwellyn, Turners-Hill. 17. Aulcetter, Christchurch, Cowlinge, Donnington, Havant, Ivinghoe, Llanrhiad-Dyffin-Alwyd, Maidstone, Navenby, Wellow, Wenlock, Wooller. 18. Little-Brickhill, Charleton, Chippenham, Chiffelborough, Cowbridge, Criccieth, Everfley, Farringdon, Halesworth, Harwich, Hatfield, Haverfordwest, Hindon, Kirkham (Lancashire,) Lanttriffent, Laxfield, Luton, Newnham (Gloucestershire,) Newton-Peppleford, Overton (Flintsh.) Partney, Tidswell, Uphaven, Winterburn, Workington. 19. Corfe-Castle, Lammon-in-Yale, Lampeter, Market-Harborough, kept ten days, Partney, Sawbridgeworth, Testinivg, Trevena, Whitchurch (Hants); the 19th and the two following Saturdays, at Swansey. 20. Ashborne, Creiggy-Druidion, Chichester, Colchester, Devizes, Gainsborough, Grays, St. Faiths, Hereford, Rotherfield, Slaidburn, Tenby. 21. Blackburn, Bridlington, Conwydd, Rudgley. 22. Barking, Newport-Pagnell, Overton (Hants.) 23. Aberfraw, Burrowbridge, Dalton, Hastings, Llangenock, Lansawel, Lenham, Ripley (Derbysh.) Spotty. 24. Bampton (Devonsh.) Borth, Cloeaynog, East-Hastings, Gravesend, Leighton-Buzzard (Bedfordsh.) Market-Drayton, Marshfield, Matlock, Newn, Porthathway, Stow-on-the-Would, Sturminster, Tamworth, Up-Ottery, Wainfleet, Windsor, Winchester. 25. Aberwingregin, Queen-Camel, Stockport, Whit-

tlesea in the Isle of Ely, 26. Grantham, Llandegla, Llanfannan, Ovingham, Pleasly, Pennybont (Radnorshire.) 27. Aberguilly, Caergwrley, Cleobury-Mortimer, Darley-Flash, Daventry, Marfa in the Isle of Ely, Nantglyn. 28. Ashby-de-la-Zouch, Askrig, Bangor, Biggleswade, Collumpton, Diss, Droitwich, Edwinstone, East-Dean, Forest-Row, Llanidloes, Linton, Linfield, Milbourn-Port, Needham, Newbury, Newmarket (Suffolk,) Plympton, Pocklington, South-Harting, Thirsk, Totness, Warminster, Whitchurch (Salop,) Watton. 29. Abbey-Holm, Ambleside, Askrig, Bourn, Banbury, Bridgeworth, Broadwater, Burton, Chagford, Charing, Cheddar, Ewell, Halstead, Hampton (Gloucestershire,) Holt (Denbyshire,) Hunmanby, Kidwelly, King's-Cliff, Kirby-Stephen, St. Laurence (Cornwall,) Marlow, Mongham, Newcastle (Northumb.) Radnor, Sedbergh, Stainton, Thirsk, Towcester, Tunbridge, Usk, Wellesborough. 30. Holmsfirth, Llandlechyd, Newhaven (Derbyshire.) 31. Bilpar, Crowcomb.

Moveable Fairs in the Month of October.

The 11th, if on Monday, if not, the Monday after, at Sherborne. Fourth Saturday after Sept. 29, at Clithero. First Tuesday, at Alnwick. First Wednesday, at Rygate. Second Monday, at Swindon. Second Tuesday, at Tregarron. Second Thursday, at Mansfield. Second Friday, at Leyburn. Thursday before the 9th, at Porlock. Thursday se'nnight before the 10th, at Henley (Oxon.) Monday before the 10th, at Corby. Tuesday before the 10th, at Harrold, Walsall. Wednesday before the 10th, at Brackley, Dewsbury. Thursday before the 10th, at Bishop-Aukland, East-Hagburn. Saturday before the 10th, at South-Moulton. Monday after the 10th, at Bakewell, Knaresborough, Swinhead. Tuesday after the 10th, at Kingselear, Salisbury, Shiptone. Wednesday after the 10th, at Landover, Otterton, Rhaydor, Sucklebridge. Thursday after the 10th, at Banbury, Penniston. Friday after the 10th, at Waltham (Hants.) Saturday after the 10th, at Carlisle. Thursday se'nnight after the 10th, at Kingsbrampton. Thursday se'nnight after Sept. 25, at Stratford-upon-Avon. Second Saturday after the 10th, at Carlisle. Third Wednesday after the 10th, at Preston (Herts.) First Monday, Tuesday, and Wednesday after the 11th, at Thorne. Monday before the 18th, at Bellbroughton. Thursday in the week the 18th falls in, at Ely. Wednesday after the 18th, at Aberforth. Friday se'nnight after the 18th, at Chepstow. First and second Saturday after the 19th, at Swanzey. Saturday before the 23d, at Booth. Tuesday after the 23d, at Cartmell. Thursday after the 23d, at Ulverstone. Tuesday after the 27th, at Settle. Tuesday before the 29th, at Potton. Thursday before the 29th, at Bromyard. Thursday after the 29th, at Banbury. Fourth Saturday, at Newmarket (Flintshire.) Last Tuesday, at East-Grinstead. Last Wednesday, at Aberforth. Last Thursday, at Knighton. Last Saturday, at Howey.

A Candid REVIEW of NEW BOOKS.

Mr. MARSHALL's Minutes of Agriculture.

[Continued from page 252.]

PERHAPS the following observations on the weather may not be displeasing.

" *The Weather, Sept. 25. (Monday)* During the late rainy weather I made these observations :

" The sun never set clear, except one night, and the next day was fine.—Last Wednesday evening he was lucid till within a few minutes of setting, when he seemed to drop behind a dusky, gloomy mountain ;—it lightened very much all night, and next morning thundered and rained a good deal. On Thursday he set amid some broken clouds ; but whenever he appeared, it was with a vividity which shewed the transparency of the atmosphere :—he did not, as before, seem to immerge in an ocean of vapour. We have had remarkably fine days ever since.

" The wind was chiefly to the westward, and generally high. It once got round to the eastward, and stood for some time, but without any change of weather.

" The atmosphere was seldom free from large towering clouds—some vertical, some oblique, but few horizontal.—On Monday and Tuesday they became less unwieldy ;—they seemed to spin themselves into threads of vapour, which scudded across the zenith with great rapidity, sometimes bending to the earth, causing drizzling showers.

" The geese, during the intervals of sun and wind, repeatedly washed themselves with a glee which shewed an agreeable expectation, and always preceded heavy showers.

" The red-breasts whistled faintly under the shed and in the hovels till Friday morning, when they sung aloud upon the barns and houses, seeming to proclaim the agreeable change.

" The flies bit, but not very remarkably : yet I could guess, by the uneasiness of my horse, the quantity of rain which was coming.

" Until Wednesday evening I do not recollect seeing a cobweb upon the ground for the month preceding.—Some barley, which we then spread in the field to dry, was covered in five minutes.—Before sun-set the whole earth was so completely strewn, that one was ready to idea the soil itself to be spiders.—They have continued since to spin out their threads so profusely, that they fly about the fields in ropes ; and by perpetually coming across the face, make it disagreeable to ride through the lanes and fields.

" The

"The glass was up and down, sometimes twice in 24 hours; but generally it portended the rain pretty truly. Nothing, however, marked the change so discriminately as the spider.

"It is the received opinion, that the weather is influenced by the moon;—and whether or not Saturdays' moons are generally worse than others, the late moon was certainly born on a Saturday.—She changed last night—therefore the weather changed two days before the moon.

"SERVANTS. Oct. 10. What an absurd custom to change servants at Michaelmas,—the very height of wheat seed-time! Wheat, it is true, ought to be in before Michaelmas; but where lives the Farmer whose wheat is all in? Instead of four, I can make only two tolerable ploughmen.—What a shame that a week of fine weather should be murdered at this critical time of the year!

"How much better the custom of the north of England, where Martinmas (the 22d November) is the only time of changing servants.—A more eligible time could not be devised by the Farmer.—The strangers enter in a scene of tranquility, and have all the winter to become familiar in;—while here, they blunder, in the bustle of wheat seed-time, totally ignorant of the field they are to hurry to, and of the brute and implement they are to work with.

"Paid off David, Will, Jack, Joe:—Tyburn never sent hell a more highly-finished group! I hope I shall never pay off another 'Round-Towner. May the consignment of West-countrymen arrive safe, and turn to better account!

"Last year, I was obliged to take such as I could get;—their lodging-room was not finished at Michaelmas;—and I was obliged to pick up the starving refuse in winter.—This year, I have culled in time.—I expect them more ignorant, but less vicious.—Ignorance may be improved; but blackguardism cannot be mended. It is dangerous, and exceedingly disagreeable, to have a set of known scoundrels about the house."

[Mr. Marshal seems to have had bad luck in every thing. Servants are in general very indifferent every where; but we are apt to think, if a time of servants being wanted was not the time of hiring, many poor fellows, and honest ones too, would go without a meal of victuals.]

"*The WEATHER. Hazard of Farming.* Oct. 10. Although my heart is more at ease to night, than it has been since the late rainy weather set in—yet I cannot suppress my astonishment,

ment, that not one writer on Agriculture has touched on the hazard of farming. They suppose the crop in the barn before it is cut—and calculate the quantity of produce, according to the state of the soil; without taking in the idea of the uncertainty of weather.

“But how ignorant! Our barley this year, including the loss of fodder and extra labour, is at least 25 per cent. worse for the weather at harvest, and twenty per cent. more for the drought after seed-time. One neighbouring Farmer turned his hogs to his barley, and another’s was scarcely worth carrying home. I had some second cut of clover offered me;—I calculated the hazard of a late crop, and would not give the price demanded.—It was fold, cut, and cocked; but rotted in the field, and was left as a dressing for a future crop. Yet a Y---g or a V---o would have laid it, rain, snow, or sun-shine, at 30s. or 40s. an acre.

“Insurers have averages—Merchants bad debts—and Farmers bad weather.”

[Mr. Marshal’s out-of-the-way reflection on a worthy man is mean, and comes with an ill grace. Mr. Marshal does not seem conscious of *his own inabilities*.]

[DEPOSITING. Pray, Sir, what is Depositing? Is it cross-furrowing, or is it stepping four inches in the flush, or what? Do, Mr. Marshal, write in language you understand yourself, and then, perhaps, every one else will understand you.]

“October 31. Within fifteen months we have lost

A cow, worth	—	—	£. 8	0	0
A horse, worth	—	—	10	0	0
An ox, worth	—	—	9	0	0
Four hogs, worth	—	—	5	10	0

£. 32 10 0

Besides losses by the weather, and fifty other lesser casualties. All Farmers must have some;—yet it seems unfashionable to talk of the hazard of farming, or make use of the word loss in calculations on Agriculture.”

[While we speak our sentiments, and condemn Mr. Marshal for his pedantic affectation, we must do him the justice to declare, we are often pleased with his observations.]

“Rearing of Hogs. Cow-keeping. Nov. 5. During the last eighteen months we have reared forty-five hogs.

4 of them are now worth 50s. each,	£. 10	0	0
8 ditto — — 35s.	14	0	0
	£. 24	0	0

		Brought forward	£. 24	0	0
7 ditto	—	25s.	—	8	15 0
8 fatted; valued lean at	18s.	—	—	7	4 0
4 hung, worth at the time,	—	—	—	6	0 0
2 sold for	—	—	—	2	14 0
3 butchered—(worth at the time of accident)	—	—	—	1	15 0
3 staggery, (worth when taken)	—	—	—	1	10 0
6 young pigs, worth 10s. each	—	—	—	3	0 0
45 reared to be worth	—	—	£ 54	18	0

What have they cost? This is difficult to calculate.

The large hogs that were fatted ate the chief of the cabbages and turnips of last year; for the above were all very small or unfarrowed when these cabbages were finished.

Suppose they ate the value of	—	£. 1	1	0
Bought 8 and 5 bushels of pollard, at 1s. and 1s. 6d.	—	0	15	6
The sows and young pigs had a quarter of head-barley	—	1	10	0
grains, worth	—	1	1	0

£. 4 7 6

Besides this, they have had the grains of the brew-house, the skim-milk (this year very trifling) the wash of the kitchen, the pollard of the bolting-mill, the stubbles, the pea-rakings, the acorns, &c. &c. &c. But certainly, forty or fifty hogs, which have constantly been in the yard all night, and frequently in the day-time, must have made dung equal to twice the sale value of these trifles. But supposing it only to stand against them, and that their attendance has cost 5l. 12s. 6d. (it has not cost so much) there will remain a neat cost of 10l. and of course a neat profit of 44l. 18s. supposing they had all done well. As it is, or had half of them died after they had reached these values, it would still be the neat produce. Deduct the four hung, and the three given away, there is a neat profit left of 37l. 8s. or 374 per cent.

What branch of Farming can equal this in profit? Not suckling, I am sure. And perhaps, in future, let rearing of hogs, not suckling nor rearing of calves, be the object of cow-keeping.——Perhaps, let each cow make her own calf—and convert the surplus to butter and hog-wash. Let rearing of hogs be the end—cow-keeping the means: and, rather than stint a farrow of pigs, sell a young calf to a suckling-farmer, or one, half fat, to the butcher. “Have but one end, employ “the rest as means.”

[To be continued.]



T H E
FARMER'S MAGAZINE.

O C T O B E R, 1779.

A DISSERTATION on the Progress and present State of
AGRICULTURE. [Continued.]

C H I N A

IS situated between the 95th and 130th degree of east longitude, and between the 20th and 50th north latitude, being rather more than 1500 miles in length, and about 1260 in breadth. It is bounded on the north by Tartary, by the Pacific Ocean on the east and south, and by Thibet and part of the Mogul's empire on the west.

<i>Divisions.</i>	<i>Subdivisions.</i>	<i>Chief Towns.</i>
North of the great wall are the provinces	{ Ninche, Corea, Laotonge	{ Ninche Petcheo Chinyam.
Within the great wall, and adjoining to it, are the provinces	{ Pekin, Xanfi, Xenfi,	{ Pekin Trayen Sigan.
On the coast of the Chinese sea, are	{ Xantum, Nankin, Tchekiang,	{ Chinchis Nankin Nimpo Chufan.
The midland provinces are	{ Honan, Huquam, Kiamfi,	{ Honan Toangfu Nankan.
The southern provinces are	{ Fokien, Canton, Quamfi,	{ Fochien Amoy Canton Quelin.
The western provinces are	{ Suchuen, Quechen, Yunnan,	{ Tchinteu Queyang Quechen Yunnan.

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The

<i>Divisions.</i>	<i>Subdivisions.</i>	<i>Chief Towns.</i>
The Chinese islands are	Formosa, Anian, Macao, Busshee Islands,	Tambay Lincato Macao.

This nation is said to have lasted through a successive series of 4000 years, and was most probably founded by Noah himself; nor is this antiquity in the least to be wondered at. The narrow bounds of our history, and the small extent of our kingdoms, which rise and fall in a quick succession, are the consequences of wars, superstition, and the unfavourable circumstances of our situation. But the Chinese, who are encompassed and defended on all sides by seas and deserts, have, like the ancient Egyptians, given a lasting stability to their empire. Since their coasts and the inland parts of their territories have been peopled and cultivated, this happy nation must of course have been the center of attraction to all the surrounding people; and the wandering or cantoned tribes must necessarily have gradually attached themselves to a body of men, who speak less frequently of the conquests they have made, than of the attacks they have suffered; and are happier in the thought of having civilized their conquerors, than they could have been in that of having destroyed their invaders.

In a country where the government is so ancient, we may every where expect to find deep traces of the continued force of industry. Its roads have been levelled with the exactest care; and, in general, have no greater declivity than is necessary to facilitate the watering of the land, which they consider, with reason, as one of the greatest helps in agriculture. They have but few, even of the most useful trees, as their fruits would rob the corn of its nourishment. There are gardens, it is true, interspersed with flowers, fine turf, shrubberies, and fountains; but however agreeable these scenes might be to an idle spectator, they seem to be concealed and removed from the public eye, as if the owners were afraid of shewing how much their amusements had encroached upon the soil that ought to be cultivated or the support of life. They have no parks or extensive forests, which are not near so serviceable to mankind by the wood they furnish, as prejudicial by preventing agriculture; and while they contribute to the pleasure of the great by the beasts that range in them, prove a real misfortune to the husbandman. In China, the beauty of a country seat consists in its being happily situated, surrounded with an agreeable variety of cultivated fields, and interspersed with trees planted irregularly, and with some

some heaps of a porous stone, which at a distance have the appearance of rocks or mountains.

The hills are generally cut into terraces, supported by dry walls. Here there are reservoirs, constructed with ingenuity, for the reception of rain and spring water. It is not uncommon to see the bottom, summit, and declivity of a hill watered by the same canal, by means of a number of engines of a simple construction, which save manual labour, and perform with two men what could not be done with a thousand in the ordinary way. These heights commonly yield three crops in a year. They are first sown with a kind of radish, which produces an oil, then with cotton, and after that with potatoes. This is the common method of culture, but the rule is not without exception.

Upon most of the mountains, which are incapable of being cultivated for the subsistence of man, proper trees are planted for building houses or ships. Many of them contain iron, tin, and copper mines, sufficient to supply the empire. The gold mines have been neglected, either because their produce did not defray the expence of working them, or because the gold dust, washed down by the torrents, was found sufficient for the purposes of exchange.

The sandy plains, saved from the ravages of the ocean, (which changes its bed as rivers do their course, in a space of time so exactly proportioned to their different moments, that a small encroachment of the sea causes a thousand revolutions on the surface of the globe) form, at this day, the provinces of Nankin and Tchekiang, which are the finest in the empire. As the Egyptians checked the course of the Nile, the Chinese have repulsed, restrained, and given laws to the ocean. They have re-united to the continent, tracts of land which had been disjoined by this element. They still exert their endeavours to oppose that over-ruling effect of the earth's motion, which in conformity with the celestial system drives the ocean from east to west. To the action of the globe the Chinese oppose the labours of industry: and while nations, the most celebrated in history, have, by the rage of conquest, increased the ravages that time is perpetually making upon this globe; they exert such efforts to retard the progress of universal devastation, as might appear supernatural, if daily experience did not afford us strong evidence to the contrary.

To the improvements of land, this nation adds, if we may be allowed the expression, the improvement of the water. The rivers, which communicate with each other by canals, and run

under the walls of most of the towns, present us with the prospect of floating cities, composed of an infinite number of boats filled with people, who live constantly upon the water, and whose sole employment is fishing. The sea itself is covered with numberless vessels, whose masts, at a distance, appear like moving forests. Anson mentions it as a reproach to the fishermen belonging to these boats, that they did not give themselves a moment's intermission from their work to look at his ship, which was the largest that had ever anchored in those latitudes. But this inattention to an object, which appeared to a Chinese sailor to be of no use, though it was in the way of his profession, is perhaps, a proof of the happiness of a people, who prefer business to matters of mere curiosity.

The manner of culture is by no means uniform throughout this empire, but varies according to the nature of the soil and the difference of the climate. In the low countries towards the south, they sow rice, which, being always under water, grows to a great size, and yields two crops in a year. In the inland parts of the country, where the situation is lofty and dry, the soil produces a species of rice, which is neither so large, so well-tasted, or so nourishing, and makes the husbandman but one return in the year for his labour. In the northern parts the same kinds of grain are cultivated as in Europe, which grow in as great plenty, and are of as good a quality as in any of our most fertile countries. From one end of China to the other, there are large quantities of vegetables, particularly in the south, where, together with fish, they supply the place of meat, which is the general food of the other provinces. But the improvement of lands is universally understood and attended to. All the different kinds of manure are carefully preserved, and skillfully distributed to the best advantage; and that which arises from fertile lands is applied to make them still more fertile. This grand system of nature, which is sustained by destruction and re-production, is better understood and attended to in China than in any other country in the world.

A philosopher, whom the spirit of observation has led into their empire, has found out and explained the causes of the rural œconomy of the Chinese.

The first of these causes is that character of industry by which these people are particularly distinguished, who in their nature require a less share of repose. Every day in the year is devoted to labour, except the first, which is employed in paying and receiving visits among relations; and the last, which is sacred to the memory of their ancestors. The first is a social duty, the latter

latter a part of domestic worship. In this nation of sages, whatever unites and civilizes mankind is religion; and religion itself is nothing more than the practice of the social virtues. These sober and rational people want nothing more than the controul of civil laws to make them just; their private worship consists in the love of their parents, whether living or dead; and their public worship in the love of labour, and that labour which is held in the most sacred veneration is Agriculture.

The generosity of two of their emperors is much revered, who, preferring the interests of the state to those of their family, kept their own children from the throne to make room for men taken from the plough. They revere the memory of these husbandmen, who sowed the seeds of the happiness and stability of the empire in the fertile bosom of the Earth—that inexhaustible source of whatever conduces to the nourishment, and consequently to the increase of mankind.

In imitation of these royal husbandmen, the emperors of China become husbandmen officially. It is one of their public functions to break up the ground in the spring; and the parade and magnificence that accompanies this ceremony, draws together all the farmers in the neighbourhood of the capital. They flock in crowds to see their prince perform this solemnity in honour of the first of all the arts. It is not, as in the fables of Greece, a God who tends the flocks of a King; it is the father of his people, who, holding the plough with his own hands, shews his children what are the true riches of the state. In a little time he repairs again to the field he has ploughed himself, to sow the seed that is most proper for the ground. The example of the prince is followed in all the provinces; and at the same seasons, the viceroys repeat the same ceremonies in the presence of a numerous concourse of husbandmen. The Europeans, who have been present at this solemnity at Canton, never speak of it without emotion; and make us regret that this festival, whose political aim is the encouragement of labour, is not established in our climate, instead of that number of ostentatious shews, which seem to be invented by idleness to make the country a barren waste.

It is not to be imagined, however, that the court of Pekin is really engaged in the labours of a rural life. The arts of luxury are grown to so great a height in China, that these performances can only pass for mere ceremonies. But the law which obliges the prince to shew this token of respect to the profession of the husbandman, has a tendency to promote the advantage of agriculture. The deference paid by the sovereign to public opi-
ons

ons contributes to perpetuate them; and the influence of opinion is the principal spring that actuates the political machine.

This influence is preserved in China by conferring honours on all husbandmen who excel in the cultivation of the ground. When any useful discovery is made, the author of it is called to court to communicate it to the prince; and is sent by the government into the provinces, to instruct them in his method. In a word, in this country, where nobility is not hereditary, but a mere personal reward indiscriminately bestowed upon merit: several of the magistrates and persons raised to the highest employments in the empire are chosen out of families who are solely employed in the cultivation of land.

These encouragements which belong to their manners are further seconded by the best political institutions. Whatever is in its nature incapable of being divided, as the sea, rivers, canals, &c. is enjoyed in common, and is the property of no individual. Every one has the liberty of going upon the water, fishing, and hunting; and a subject who is in possession of an estate, whether acquired by himself or left by his relations, is in no danger of having his right called in question by the tyrannical authority of the feudal laws.

The smallness of the taxes is still a further encouragement to agriculture. Till lately, the proportion paid to government out of the produce of the lands, was from a tenth down to a thirtieth part of the income, according to the quality of the soil. This was the only tribute levied in China. The leading men never entertained a thought of increasing it; they would not have ventured to act in such direct opposition to custom and opinion, which determine every thing in this empire. Some emperors and ministers, no doubt, would have been glad to attempt an innovation of this kind, but as such an undertaking would require time, and they could not hope to live to see its success, they did not choose to engage in it. Men of bad principles aim at immediate enjoyment, while the virtuous subject, extending his benevolence beyond the present generation, contents himself with forming designs, and propagating useful truths, without expecting to reap any advantage from them himself.

It is but lately that conquest and commerce have introduced new taxes into China. The Tartar emperors have laid a duty upon certain articles of provisions, metals, and merchandize. In short, if we may believe the Jesuit Amyot, customs are established there as well as in Europe.

It were to be wished, that the Europeans would imitate the Chinese in the mode of levying their taxes; which is just, humane,

mane, and not expensive. Every year, at the time of harvest, the fields are measured, and rated in proportion to their actual produce. Whether the Chinese are as dishonest as they are represented, or whether, like several nations among the ancients, they are only faithless and deceitful in their dealings with strangers, we shall not take upon us to determine; but it should seem that government reposes sufficient confidence in them, not to vex and molest them by those searching and troublesome visits, so common in the mode of taxation in Europe. The only penalty inflicted on persons liable to be taxed, and who are too slow in the payment of the tribute demanded by the public, is to quarter old, infirm, and poor people upon them, to be maintained at their expence, till they have discharged the debt due to government. This manner of proceeding has a tendency to awaken pity and humanity in the breast of a citizen, when he sees miserable objects and hears the cries of hunger; instead of giving him disgust, and exciting his resentment by forcible seizures and the menaces of an insolent soldiery, who come to live at discretion in a house exposed to the numberless extortions of the treasury.

In China, the taxes are levied without having recourse to those oppressive methods that are practised in Europe. The mandarins take the tenth part of the produce of the earth in kind. The officers in the municipal towns give in their account of this tribute and all other taxes to the receiver-general of the province; and the whole is lodged in the public treasury. The use that is made of this revenue prevents all frauds in collecting it; as it is well known, that a part of these duties is allotted for the maintenance of the magistrates and soldiers. The money arising from the sale of this proportion of the product of the land is never issued from the treasury but in public exigencies. It is laid up in the magazines against times of scarcity, when the people receive what they had lent, as it were, in times of plenty.

It may naturally be expected that a nation, enjoying so many advantages, will be extremely populous; especially in a climate, where whatever reason may be assigned for it, the women are remarkably prolific, and the men do no injury to the natural vigour of their constitution by the use of strong liquors; where the climate is wholesome and temperate, and few children die in proportion to the numbers born; where the soil overpays the labour of cultivating it, not to mention the simple and plain manner of living in use there, which is regulated by the strictest œconomy.

The

The Jesuits, however, who were employed by the court of Peking to make charts of the empire, in the course of their undertaking, discovered some considerable tracts of desert land, which had escaped the notice of the merchants who frequented only the sea-ports, and of travellers who went only by the road of Canton to the capital.

It would be impossible to account for the want of population in some parts of China distant from each other, if it were not known, that in these extensive states, a great number of children are destroyed soon after they are born; that several of those who escape this cruel fate, suffer the most shameful mutilation; and that of those who are not thus barbarously robbed of their sex, many are reduced to a state of slavery, and deprived of the comforts of marriage by tyrannical masters; that polygamy, so contrary to reason and the spirit of society, is universally practised; that the vice which nature rejects with the utmost abhorrence, is very common; and that the convents of the Bonzes contain little less than a million of persons devoted to celibacy.

But if a few scattered districts, which are hardly known even in China, be destitute of hands to cultivate them, there are many more in which men are crowded together in such numbers as to incommode each other. This inconvenience is observable in the neighbourhood of great cities and public roads, and particularly in the southern provinces. Accordingly it appears, by the records of the empire, that a bad harvest has seldom failed to produce an insurrection.

We need go no further to find the reasons which prevent despotism from making any advances in China. It is evident from these frequent revolutions, that the people are fully sensible that a regard to the rights of property, and a submission to the laws, are duties of a lower class, subordinate to the original rights of nature, and that communities are formed for the common benefit of those who enter into them. Accordingly, when the more immediate necessities of life fail, the Chinese cease to acknowledge an authority which does not provide for their subsistence. The right of kings is founded on the regard they pay to the preservation of the people. Neither religion nor morality teach any other doctrine in China.

[To be continued.]

ART. II. *Mode of FARMING pursued by a MEMBER of the
BATH AGRICULTURE SOCIETY.*

[Continued from page 275.]

MY aim was to bring all my land as soon as possible to bear turnips, which I consider as the foundation of good husbandry, in the following order. Turnips, barley, clover, and wheat, and this succession invariable. After I got my land in order, for which I spared no expence, my crops were large, five quarters of barley, and from eight to ten sacks of wheat in general. I made it a rule always to manure my clover as soon after the barley was off as I could; and this dressing was of the best materials I could collect, with stable dung if I could get it. But to proceed in my story with the rest of my farm, for I have only yet mentioned fifty-two acres.

No. XI. had borne a second crop of oats self-sown; this to be sure must be summer-fallowed. I had it ploughed six times, and dunged with twelve good waggon loads of stable dung well rotted to an acre, but being stoney land, I sowed it with wheat instead of turnips, and yet the produce was not more than three quarters per acre. I think, from the experience I have had, that dung does not do very essential service when applied for a crop of corn, but to turnips, pulse, grass, or vetches, it is of the utmost importance; and, after these crops, will wonderfully assist the corn crops, as barley after turnips, and wheat after pease, vetches, or clover.

No. XII. was a clover lay, which not having been dressed for grass, I manured for wheat, but the produce was very small, not more than three sacks and a half to an acre; this was turnipped after the wheat.

No. XIII. XIV. and XV. I summer-fallowed, well dunged, and sowed with turnips; these were a light lively land, capable of being worked after a month's rain, and yet not burning. The turnips were remarkably good, the barley five quarters per acre. As soon as the barley was off, the clover was dunged; and the produce of the clover at two cuttings three tons and a half per acre. The wheat was sown at one ploughing, two bushels per acre, and the produce full nine sacks and two bushels upon the average.

No. XVI. was a barley stubble, with a good plant of clover. I dressed the clover well, and mowed near two tons at two crops, and sowed the land with wheat. In the spring the wheat was very thin and worm-eaten; I sowed some foot over the parts that were injured, which stopped the further progress of the worm; and the land being in good heart from the dung I had

put on the clover, the wheat tillered amazingly, and produced, totally unexpected by me, three quarters and a half per acre. However a spring cleaning of foul land for barley may answer for that crop and the crop of grass, yet when the land comes to be sown with wheat afterwards, the couch will almost get the better of the wheat, and inevitably do it considerable damage; of this I had an instance in No. XVII. which was a clover stubble left after barley, where great pains had been taken to clean the land and rid it of couch; but the land, when turned up and sown with wheat, was so foul, that the crop of wheat hardly paid the expences, and I repented I did not summer fallow and sow it with turnips out of the clover.

No. XVIII. I sowed after pease with white oats and clover, but the clover did not take kindly; and as the oats were got off pretty soon, my man advised me to sow it with wheat; accordingly I had it ploughed four times, and got out all the clutter of couch, weeds, &c. that we could; after that I dunged it and sowed it with wheat; the crop was not very much amiss, but not equal to what I expected, and I might better have turnipped it at once.

No. XIX. was wheat stubble, which I summer fallowed and sowed with turnips.

Thus I have given the method of farming I pursued in Berkshire without imposition or exaggeration.

No.	Soil.	Acres.	1775	1776	1777	1778
1.	Gravelly mould	6	Pease	Wheat	Turnips	Barley
2.	Gravel and Clay	6	Potatoes & Vetch	Wheat	Turnips	Barley
3.	Deep loamy mould	4	Barley	Grass	Ditto	Ditto
4.	Stiff soil	5	Wheat	Vetches	Wheat	Turnips
5.	Mellow loam	4	Wheat	Turnips	Barley	Clover
6.	Sandy loam	4	Oats	Turnips	Barley	Clover
7.	Sandy & gravelly soil	4	Turnips	Potatoes &c.	Wheat	Turnips
8.	Ditto	6	Turnips	Barley	Grass	Ditto
9.	Mellow loam	3	Beans	Vetches	Turnips	Barley
10.	Meadow	10				
11.	Strong clayey soil	5	Sum. fal.	Wheat	Beans	Turnips
12.	Stiff clayey gravel	5	Wheat	Turnips	Barley	Grass
13, 14, 15.	Sandy loam	12	Turnips	Barley	Clover	Wheat
16.	Ditto	4	Wheat	Turnips	Barley	Clover
17.	Sandy & gravelly loam	5	Wheat	Turnips	Barley	Clover
18.	Gravelly soil	6	Wh. Oats	Wheat	Turnips	Barley
19.	Sandy & gravelly loam	10	Turnips	Barley	Clover	Wheat
20, 21.	Meadow	16				

By this mode of farming, I had only nine acres of wheat in the year 1777; a considerable less quantity than any other. But in general, I wished to have the farm as equally divided as possible into the several crops of Turnips, Barley, Clover, and Wheat.

T. L.
ART. III.

ART. III. *On making of SEA BISCUIT.*

[From POSTLETHWAITE'S DICTIONARY.]

BISCUIT, or Bisket, is so named perhaps from the words *bis* and *coctus*, twice baked. But Sea Biscuit requires to be four times baked. Whereas the other sorts are baked but twice.

Bisket, in order to be good, should be made six months before it is put on board a ship: it must be of good wheat flour, thoroughly cleaned from bran, and with a well-leavened dough.

Water and bisket are the most necessary provisions in the fitting out of ships, and, if either of these two be lost or spoiled, the crew languish away, and often perish most miserably, especially if they happen to be bound for a very long voyage.

With regard to bisket, we shall present the reader here with several observations designed to shew how to make good bisket: they are extracted from a memorial drawn up by Mons. Savary de Ganche, who had, during ten years, the general direction of the victualling-office of marine in France, for the district of Brest.

Wheat is the only corn that must be used in the making of sea-bisket. It ought to be chosen of a red grain, smooth, and, above all, well cleaned from grit, tares, or vetches, and all sorts of weeds.

New wheat, three or four months old, is the best; that of a year old may also be used, provided it has not been heated, and was kept in very dry and well-aired barns, not raised in too high a pile, that is, of two feet and an half at most, and has been well stirred once in a fortnight.

When the corn is taken out of the barn, it must be exposed to the air, and stirred with a shovel two or three times at least. When it is heated on the surface only, which may be known by its not smelling sour, and if the grains do not stick to each other when pressed with the hand, it must be kept a month in the barn, and continually stirred, till it be well recovered.

Flour which comes from abroad, especially if it be well cleaned from bran, is not safe to make bisket of, if it be but never so little heated. Its musty scent may be taken away, by often stirring and sifting it; but you can never take off its bad taste, which afterwards infallibly spoils the bisket. Nevertheless, bread may be made of it, because it is not necessary to keep it long.

It is better to have flour from abroad with the bran, because it is not so apt to heat in the boats, when it is well packed up, that is to say, well beaten and pressed in the sacks.

Good flour must have no manner of smell; when put upon the tongue, it ought to taste like a nut; and, when sifted, it must be like velvet to the touch; when it is sandy, that may be found out, by putting a handful of flour into a basin of water; the sand, if there be any, will all settle at the bottom.—When the flour comes from the mill, the bran mixed with it ought to be flat and broad; nor should it be sifted till about a fortnight after it is ground, that the moisture it has contracted at the mill may dry off, and so pass the better through the sieve, which is absolutely necessary for the making of good bisket.

In order to make the leaven, a piece of dough weighing about twenty pounds, from the leaven of the last oven-full, should be prepared, which is done, we'll suppose, between eleven and twelve at noon. At four of the clock in the afternoon, the baker puts that dough into the kneading-trough, and pours over it about five gallons of very clean water, a little more than lukewarm, but hotter in winter than in summer; he dilutes afterwards with the quantity of flour necessary to consume all that water, so as to make a dough neither too soft nor too hard.—This new mass of dough weighs commonly about sixty pounds. In this condition the baker puts it in a corner of the kneading-trough, surrounding it on all sides with flour to support it.—When it has been rising five or six hours, the same operation is repeated, by adding water and flour to the dough, which increases it by about thirty pounds.

About one or two of the clock the next morning, which is the time when the baker would knead, he adds thirty pounds more to the paste, which makes a mass of about 120 pounds; of this he takes half to serve as leaven to the next baking, and at the same time kneads the remaining sixty pounds in the kneading-trough for the first oven full, and, for the other bakings he is to make during the rest of the day, he increases the leaven at once with sixty pounds, which he puts into a tub or bucket, in order to continue the same alternately, except that for the last oven full he adds but twenty pounds to the leaven, which is to serve for beginning the same operation again the next day.

Care must be taken that the baker, out of laziness, does not knead two oven-fulls upon the same leaven, for in that case the bisket would be apt to corrupt. Let it be observed, that in winter there ought to be one-eighth part of leaven more than in summer. It must at all times be covered with some woollen-stuff, as cloth, frize, or ratteen, but never with linen, to prevent a crust being formed upon it.

In

In some places, and particularly at Brest, they follow another method, but which is not reckoned so good. They take, indeed, twenty pounds for the first leaven, which they increase to sixty pounds, as in the former operation; but then, within six hours after, they increase it to two hundred pounds, which they divide into four parts, two of which they put at the ends of the kneading-trough, one into one bucket, and another of twenty pounds into another. The three former parts serve to knead the three first bakings, or ovens-full; and the last parts to compose three other parcels of leaven for three other bakings, with a quantity of twenty pounds weight of leaven for the next day's baking.

The kneader takes water out of the kettle or copper which he used for the leavens, and dilutes that which he would employ into a whitish and thick water; and, putting flour to it two or three times, he kneads it quickly and very strongly with his fists, going from the right to the left, and beginning again from one end to the other, and from the left to the right, he reduces it to one single mass. After this, he flattens it with the palms of his hands, and divides it into four parts: then he flattens them again, and handles and kneads them with all his might one after another; afterwards he puts them again upon one another, and, having cleaned his kneading-trough, he puts the whole into one mass, turning and kneading it still. After which he cuts it again into four parts, which having rejoined for the last time, he takes the dough out of the kneading-trough, and puts it upon a table, where another workman turns it often and often, during a quarter of an hour, till it be very firm and dry.

[To be concluded in our next.]

ART. IV. *Copy of a Letter from Mr. JONATHAN GLEED to the AGRICULTURE SOCIETY at MANCHESTER, on the Curled Disease in Potatoes.*

FROM experiments that I have made I was led to think that the curled disease in potatoes proceeds from their being set on old tilled or worn out ground; for though those potatoes may look tolerably well, and not appear to be curled, yet make sets of those potatoes and plant them, most, if not all, will be curled.

Last year, I procured some potatoes from fresh new-marled land, and planted them in old tilled couch-grass land; the potatoes as above, were free from curled ones; but, being planted this year, most of them are curled.

I have

I have made the observation in several different instances, and am convinced that no sets ought to be used from old tilled or couch-grass land. In order to have good sets, take care to procure them from land that was purposely fallowed for them from fresh lay land, where you observe they are not curled, or from lay land that was burned last spring; plant them on light virgin mould, and your potatoes will have no curled ones amongst them; hole them for winter from any other kind.

But it is so difficult to be sure of your sets not having come from worn-out land the year before, that I should recommend potatoe crabs to be gathered from potatoes growing this year on fresh land, free from curled ones; and next spring, sow them on fresh lay land, and continue to plant the sets from them on fresh lay land yearly, and I am convinced you will not have curled potatoes.

I saw curled potatoes growing last year on bad old tilled land, and the increase from those potatoes was planted this year on bad old tilled land: they are now ploughed up, and the land sowed with turnips.

But who is able to procure curled potatoes growing this year on fine fresh lay land that was fallowed or burned last year? —If any curled potatoes can be procured this year, from the above-mentioned land, I shall conclude those potatoes were distempered in 1776, by growing on old tilled land, yet those potatoes that are good may be proper for sets.

There are different sorts of curled potatoes, some badly curled, others not so bad, those that are badly curled will not be recovered by planting them on fine fresh lay land, and those that are but little curled may be recovered, by planting them on the afore-mentioned land.

Also we see some potatoes, growing this year, will have one good stem, and one curled stem; this is owing to the potatoe set having two eyes, one end of the set rots, and will have a good stem, the other end is hard, and will have a curled stem.

1776, Peter Hoult, of Lymm, raised potatoes from seed, from uncurled ones, planted them with his other potatoes for use last year, in old tilled worn-out land, and this spring planted them in a fresh broke up pasture, and they are the greatest part of them curled.

Also, several persons have sown seed in old tilled gardens, in hopes to have been free from curled ones, and wherever they have planted them next year, I have observed they have been curled.

I shall

I shall continue my observations, and shall always be ready to give any information I am able to so useful a society.

I am, gentlemen, your obedient servant,

J. G.

P. S. Where I have seen good potatoes growing this year, either on fresh lay land or on old tilled land, upon making inquiry, I have found the potatoe sets grew upon fresh lay land last year.

The reason which appears to me, why curled potatoes are more common now than formerly, is, that the land is oftner cropped than it used to be, much more corn being raised in this country than formerly.

By order of the Society, the different claimants for this premium made different experiments, by planting their sets in a field belonging to Mr. John Seddon, (one of the Society's inspectors) at his farm in Pendleton, near Manchester, of which Mr. Seddon took exact minutes. The result of Jonathan Gleed's experiments seem very much to confirm the theory he has laid down in the preceding letter. They were as follow:
No. 1. Dwarfs,—grew last year upon moss land that had been burnt.—No curled ones in this year's crop.

No. 2. Manley's,—sprits rubbed off before setting—crop free from curl.

No. 3. Manley's,—not spirit—crop also free from curl.

No. 4. Golden Tags,—came off black land—crop free from curl.

No. 5. Ditto,—four whole potatoes spirit twice—also free.

No. 6. Winter White's,—came off fresh lay land fallowed—spirit once—a few in the crop curled.

No. 7. Winter Whites,—grew upon old tilled lands last year, and were free from curl—this crop mostly curled.

No. 8. Winter Whites,—from the same sort of land,—were curled last year—this crop all curled.

N. B. As these two last sorts grew upon old tilled land last year, Mr. Gleed expected they would be curled this.

ART. V. *Remarks on BANKS and BANKING.*

[Continued from Page 273.]

WE should not omit observing the mistake of those who have imagined, that Lands settled to a competent value might be erected into a Bank, and would become so certain and reputable a fund, that, if bills were issued to the value of above three times the usual purchase of the lands, they might obtain

obtain a currency, upon the assurance that two-thirds of the clear rents of the lands paying off yearly such a proportion of the bills, the whole number of them would be paid off and sunk in 100 years. Or, to render this more intelligible; that lands of 150*l.* per ann. being settled upon a land-bank for the payment of 100*l.* clear every year, bills for 10,000*l.* might be issued thereupon, whereof 100*l.* being discharged yearly, the whole would be cleared, and the land revert to the proprietor, at the end of 100 years; and it has been supposed practicable, with the help of a little circulating money, to give these bills such a currency at the first, as to induce the public, in a little time, to esteem them as money, because they would all certainly be paid in time.

We might well suppose, that the absurdity of this project was at first sight too evident to deceive mankind, had we not experienced, that many people were once drawn in to squander away their money, upon an attempt to put this imaginary scheme into practice: it may not, therefore, be time mis-spent, if, while we are on this subject, we detect the fallacy of this notion, in order to guard the public from being again imposed on by such chimeras.

Let it then be considered, that all things bought and sold are valued at a certain price, standard, or measure, in respect to the current money of the country.

Those commodities, which are called staple, have a pretty certain established price; from which they rarely vary much for a series of years, unless on extraordinary occasions; such as lead about 1*d.* a pound, or gold, reckoned about 4*l.* per ounce, and the lands of England valued, on an average, at about 20 years purchase; which makes 150*l.* per ann. worth 3000*l.* and an annuity of 100*l.* per ann. for 100 years, secured to be paid by lands of a competent value, may be esteemed at about 1900*l.*

The first principle, in dealing, is to know the worth and value of commodities; and no man will give more for a thing than he esteems it worth.

As money then is the medium of commerce, and as bills, of whatsoever kind, are always to be taken as so much money (being only intended, as has been already shewn, to excuse the frequent receiving and paying it) any person not interested in such a bank, who takes 10,000*l.* value in their bills, either buys them or receives them in payment for so much due to him, and is sure, that neither he nor his assignees can ever receive more for them, than 100*l.* per ann. for 100 years successively; and he that will give 10,000*l.* for such an annuity, which might have been purchased for about 1900*l.* would have been accounted

counted as wise, as he that would have given 5s. per lb. for lead, or 20l. per ounce for gold, or 166 years purchase for lands.

The mistake of this project seems to arise from an imagination, that because 'tis common for Trading Banks to obtain so great a credit, that their bills may pass through many hands, before they come to be paid; whereby a great running credit in their bills may be circulated with a far less sum in money; that therefore this Land-Bank also would in time arrive to the same reputation.

This confidence may seem to be confirmed, from the further observation, that young tradesmen are frequently trusted with goods to two or three times the value of their own proper stock or worth; wherefore, it may be necessary to consider the difference of these two kinds of credit.

He that sells goods upon credit, always makes such a price as shall sufficiently compensate for the time of the trust, and from thence arises a principal part of his gain; but then he so orders his affairs, that the money constantly coming in from his debtors may be sufficient to answer all demands of his creditors, whereupon his own reputation depends. Now, if this tradesman, for saving the trouble of receiving and paying money, lodges his money in a bank, expecting no interest or profit thereon; 'tis in confidence, that it lies always as ready there to answer his note at demands, as if it lay at home in his own coffers in cash: and he is very sensible, that, if he meets with any disappointment in this, he hazards his own credit.

But banks gain their credit from their exactness and punctuality, in being ever ready to pay off all their bills, as fast as they are demanded; from whence people entertain an opinion, that either they keep the greatest part of their money always by them, or at least that they deal so warily, as to be able to command it all upon short warning. But the tradesman gives large credit to his debtor, because he gains by it; and, though he trusts his money to the keeping of the bank, yet it may not be said that he gives credit to it in the same sense as he does to the former, because he always depends upon having his money, every moment, to answer his emergencies.

And thus, though traders will ever esteem the bills of those banks equal with ready money, when they believe the stock is always sufficient to pay them off on demand; yet they will never be persuaded to accept bills, as current payment, from such a bank as this we are speaking of, where they are sure beforehand, that the fund proposed is so far deficient, as not to be worth one fifth part of the value which is to be issued out in bills.

There are some, however, that have proposed a much more rational scheme for the constituting of what they would call a Land-Bank, which is by settling a competent value in lands, to remain as a fixed fund of credit for the undertaking, and to raise thereon a considerable sum of money, to lie always ready for the circulating of their bills: but, if we shall strictly examine this also, it will be found, perhaps, that lands can neither be fitly applied in this way. For,

We are to observe, that trading banks may make use of their credit in a twofold manner: the one is, as they borrow for a certain time, on condition to pay interest for it; the other is, when they take upon them the trust of keeping other people's money, for which they give their bills payable at demand. For the latter, a middling fund or stock may be sufficient, as we see by the large credit frequently given to young bankers, from an opinion of the prudence and honour of the man: for the former there ought always to be a visible fund, amply competent for the lender to ground his security upon.

But, as no one will say that land alone is a practicable fund for a bank, without a proportionate sum of money conjoined with it, we shall obtain a clearer view of this point, if we consider the reason why land alone can never be a competent security for a bank.

Land and money are the two mighty sources from whence property increases, and improvements of property flow; and, though they both fall into the ocean of wealth or riches, yet they glide through different channels. Land produces it's increase by cultivation, but always remains fixed and immovable: money, on the contrary, gains nothing by lying still, but makes it's increase and improvement by being continually employed in trade, and tossed from hand to hand. Land, for the most part, takes up the whole year for the bringing about its return, but money may be returned ten or twenty times in the year: whence it may naturally be inferred, that the profits arising from the employment of money must be much greater than from the produce of land.

Those who are busy in trade, and know how to employ their whole stock, have often occasion to borrow money, but never think of purchasing lands, or letting out their money at interest; and 'tis such who usually keep their cash in banks, where it may be ready at their call: but, when men grow rich, and weary of business, they incline to lay out their money in lands, and to lend it upon proper securities; they seldom deal with banks, unless they buy stock, because, as they have no sudden occa-
sion

sion for their money, they chuse to let it lie out long upon good security, aiming at higher interest than banks usually give.

Suppose a trader takes the bill of this kind of Land-Bank, and wants the money to divide into lesser payments; but when he comes to receive it, is told by the manager of the bank that, at present, they can only pay him the interest; and for the principal he may be confident that it is secured by as good lands, and as safe a title, as any in England; the trader may well answer, that his dealing is not in usury; and that, if he cannot have the money when he wants it, to supply his occasions in trade, he is not able to carry on his business, which is much more profitable to him than the interest of money, or rents of lands; and therefore, that he will return the bill, and never meddle with any more of the like. Thus 'tis plain that a bank of lands can never prove effectual, without a sufficient fund of money to support it.

Let us see in what light this matter will appear, when it is furnished with a stock of money; and suppose that lands to the value of one million are settled for the fund of a bank, upon the credit whereof bills bearing interest are given out to voluntary lenders, for 750,000*l.* which is to the utmost usual extent of the security; and this shall be the money-stock, provided for the circulation of the bills.

And if the managers shall act so equitably as to extend their credit no farther in dealing than is adequate to their capital, does not such bank become as perfect a money-bank as any other, and the lands no otherwise concerned than as if so much money were borrowed in the common way of mortgage? for it is manifest that the lands would have no manner of operation in such-like negotiations.

But, if they shall adventure to extend their credit beyond the power of this money-capital, and that to such a degree as to have any dependence on the remaining value of the lands, this will be effectually the same thing as mortgaging the lands twice over; and, as the man who should do this would incur the censure of being a knave, people would avoid dealing with him; so, if the bank should be discovered in this practice, all people would soon withdraw their credit; and, though it should not be discovered, the action is nevertheless dishonest, because there is a possibility that a general demand may fall upon the bank, and then such traders who happen to come towards the latter end, must at best content themselves with land security, when such a disappointment of the ready money happens as they had provided for the making of their own payments: this may prove of that fatal consequence to some as to destroy their credit, and ruin their families.

Upon the whole, men may, if they think fit, mortgage their landed estates for the raising of money to be employed in banking; and with that money they may establish a competent fund for a reputable bank; but till they can find a way to toss lands from hand to hand, and divide them into as many particles as they can do a bag of money, lands cannot honestly be brought to bear any share of the banking trade, in the light we have been considering the matter; whence we may with some confidence conclude, that nothing else ought to be understood of a bank, but that it is a repository of cash, or other staple moveable treasure; and that, therefore, no other fund can fitly be applied to banking except real ready money, or what is always capable readily to produce it.

ART. VI. *Method to ascertain the Value of MARLES.*

To the EDITOR of the FARMER'S MAGAZINE.

S I R,

I ONCE troubled you with some considerations on a plan for extirpating the small-pox, and using the same precautions against a new infection as are used against the plague. But such projects are merely Utopian;—for the consideration that a scheme is practicable and beneficial weighs little with statesmen: when they do good, it is with a sparing hand, and with a view to serve some political purpose. Their more glorious schemes tend to gratify their avarice and ambition, by war, havock, and devastation.

But as our foes are at present much more arraignable at the bar of Divine Justice for this detestable policy, than ourselves, I shall wave the subject, and proceed to make publick, through the channel of your magazine, a method to ascertain the value of MARLES for the benefit of Farmers,—a race of men much more valuable than all the heroes who have deluged the world with blood since the days of Nimrod. The method is used by one of the most able chymists of the age, I arrogate no merit as discoverer, but as it is simple I thought it worth the publishing.

Marles are only valuable in proportion to the quantity of calcarious earth they contain. Many marles are used that do not contain the twentieth or even the thirtieth part of their weight of calcarious matter; and a farmer, by knowing the value of a marle, can judge whether it is not better worth his while to fetch lime from a greater distance, and at a better price; the effects of both being exactly the same. Thus, suppose the marle contains only one twentieth of its weight of calcarious earth, if the farmer can lay on the ground one cart of lime at a cheaper rate than twenty of marle, he will be a great gainer by using the lime.

Pure

Pure calcarious earth, when compleatly faturated with acids, loses about 40 per cent. or 42 at the most of its weight, from the fixed air being expelled. This points out an easy method for judging the proportion of calcarious earth in the marle, by saturating the marle with an acid, and observing the loss of weight which the earth suffers.

Thus, take a small vial filled with vitriol or aqua-fortis sufficient to saturate 200 grains of marle, put this vial into a china cup, and in the same cup put 200 grains of the marle you want to try thoroughly pulverized, and thereafter mixed with some water to wet it. You are then to take a pair of scales, and put this china cup with the vial and marle into one of the scales; into the other, put another cup with sand sufficient to make an equal ballance: then take out the vial with the acid, pour the acid on the marle, and stir it with the bottom of the vial, which being now empty is to be replaced in the cup. After the marle has been compleatly faturated, and of consequence the effervescence ceased, the scale which contains the marle will be considerably higher than the other; therefore add grains and penny-weights till the equilibrium is restored. The weights thus put into the scale show the loss the marle has sustained from being faturated with acids. If the marle had lost 80 grains out of the 200, it would have been pure calcarious earth; therefore if it had lost 40, it is half calcarious and half refuse; if it has lost 20, it is one-fourth calcarious; and if it has lost only 10 grains, it is one-eighth calcarious, and seven-eighths refuse; and so in proportion.

I have been rather diffuse, in order to be as intelligible as possible to those who are not versant in chemistry. And if any person wants to be further satisfied, he may compose an artificial marle, by mixing any proportion of the purest chalk and clay. With this substance he may repeat the experiment, which I am persuaded will shew the fiftieth or even hundredth part of the calcarious earth contained in the mixture.

I shall conclude, Mr. Sylvan, with a few observations on your plan. I imagine, it would be a valuable addition to your Magazine, if your correspondents who live in the neighbourhood of lime-quarries, marle or coal-pits; or mines, would inform you of the nature of the different strata which lie above, betwixt, and below the quarries and mines. This intelligence might prove very beneficial to the publick, as it might be the occasion of finding out quarries, which lie at present undiscovered. In the North, coal is never found but where there are beds of free-stone; and Shell-Marle is generally found below peaty molles.

And

And if you would add another half sheet of your useful Dictionary, it would be acceptable to many, and, I am persuaded, disagreeable to none. I am, Sir, your constant reader,

T. B. C.

[No. VII. *Variety of Receipts useful in a Family.*

A Receipt for Yeast.

THICKEN two quarts of water with fine flour, to the thickness of common water-gruel, boil it half an hour, sweeten it with near one pound of coarse brown sugar; when almost cold, pour it into a hand jug upon four spoonfuls of yeast, shake it together and let it stand one day to ferment near a fire without being stopped, there will then be a thin liquor on the top which must be poured off; shake the remainder, and cork it for use. It will take a gill and a half to a peck loaf; take always four spoonfuls of the last yeast to ferment the next quantity to keep it in succession. This will keep a considerable time.

To make a little Plumb-Cake.

Take two pounds of flour dried in the oven, half a pound of sugar finely powdered, four yolks of eggs, two whites, half a pound of butter washed with rose-water, six spoonfuls of cream warmed, a pound and a half of currants unwashed, but picked and rubbed very clean in a cloth, mix all together, make them into cakes, and bake them up in an oven almost as hot as for manchet, let them stand for half an hour till they be coloured on both sides; then take down the oven-lid, and let them stand a little to soak.

A Plumb-Cake, with Almonds.

Take four pounds of fine flour dried well, five pounds of currants well picked and rubbed, but not washed, five pounds of butter washed and beaten in orange-flower water and sack, two pounds of almonds beaten very fine, four pounds of eggs weighed, half the whites taken out, three pounds of double refined sugar, three nutmegs grated, a little ginger, a quarter of an ounce of mace, as much cloves finely beaten; a quarter of a pint of the best brandy; the butter must be beaten to cream, then put in your flour, and all the rest of the things, beating it till you put it in the oven; four hours will bake it, the oven must be very quick; put in orange, lemon-peel candied, and citron, as you like.

To make Cheese-Cakes.

Take a pint of cream and warm it, and put to it five quarts of milk warm from the cow, then put rennet to it, and when

it

it is come, put the curd in a linen bag or cloth, and let it drain well from the whey, but do not squeeze it much; then put it in a mortar, and break the curd as fine as butter; then put to your curd half a pound of almonds blanch'd, and beaten exceeding fine, (or half a pound of dry mackaroons beat very fine) if you have almonds, grate in a Naples biscuit; but if you use mackaroons, you need not; then add to it the yolks of nine eggs beaten, a whole nutmeg grated, two perfum'd plumbs dissolved in rose or orange-flower water, half a pound of fine sugar, mix all well together; then melt a pound and a quarter of butter, and stir it well in, and half a pound of currants plumped; let it stand to cool till you use it. Then make your puff-paste thus: take a pound of fine flour, and wet it with cold water, roll it out, and put into it by degrees a pound of fresh butter; use it just as it is made.

A good Seed-Cake.

Take five pounds of fine flour well dried, and four pounds of single-refined sugar beaten and sifted; mix the sugar and flour together, and sift them through a hair sieve; then wash four pounds of butter in rose or orange-flower water; you must work the butter with your hands till it is like cream; beat twenty eggs, half the whites, and put to them six spoonfuls of sack; then put in your flour, a little at a time, keeping it stirring with your hand all the time; you must not begin mixing it till the oven is almost hot; you must let it lie a little while before you put the cake into the hoop; when you are ready to put it into the oven, put into it eight ounces of candied orange-peel sliced, as much citron, and a pound and a half of carraway comfits; mix all well together, and put it in the hoop, which must be papered at the bottom, and buttered; the oven must be quick; it will take two or three hours baking; you may ice it if you please.

To make a Potatoe Pudding.

Take a pound of potatoes boiled and peeled, and beat as fine as flour, three quarters of a pound of sugar, eight eggs, (but only half the whites) a little rose or orange-flower water, three quarters of a pound of butter, and a little nutmeg. Three quarters of an hour will bake it.

To make the Marlborough Cake.

Beat and strain eight eggs; put to them a pound of sugar, beaten and sifted; beat it three quarters of an hour, then stir the flour in with two or three ounces of sweetmeats, and put it immediately into the oven.

To make

To make a Rice Cake.

Take of ground rice and fine flour each six ounces, and of fine sugar three quarters of a pound; let these be made warm by the fire; grate in the rind of a very large lemon or Seville orange; mix these together with nine eggs, and beat it well for half an hour, then put it into the pan. If your oven has done catching, and is properly hot, half an hour will bake it.

To make Milk Punch.

Take two quarts of water, one quart of milk, half a pint of lemon-juice, and one quart of brandy, with sugar to your taste; put first the milk and water together a little warm, next the sugar, and then the lemon-juice; stir them well together, then put the brandy, stir it again, then run it through a flannel bag; then bottle it, and it will keep a fortnight or more.

To make Biscuits.

To a quart of flour take a quarter of a pound of butter, and a quarter of a pound of sugar, one egg, and what carraway-seeds you please; wet it with milk as stiff as you can, then roll them out very thin, cut them with a small glass, bake them on tin plates; your oven must be slack; prick them very well just as you set them in, and keep them dry when baked.

Sweet-scented Bags to lay with Linen.

Eight ounces of coriander-seeds, eight ounces of sweet orrice-root, eight ounces of damask-rose leaves, eight ounces of calamus aromaticus, one ounce of mace, one ounce of cinnamon, half an ounce of cloves, four drachms of musk-powder, two drachms of white loaf-sugar, three ounces of lavender-flowers, and some Rhodium-wood; beat them well together, and put them in small silk bags.

An excellent Liquid Blacking.

Mix a sufficient quantity of good lamp-black with an egg to give it a good black; then take a piece of sponge, dip it therein, and rub over shoes, &c. very thin; when dry, rub them with a hard brush, and they will look very beautiful. You are to take care the shoes are first well cleaned with a hard brush, otherwise they will not look near so beautiful.

A general receipt against all sorts of spots, upon every sort of stuff.

A water impregnated with alkaline salt, black soap, and bullock's-gall, takes off extremely well the greasy spots from any cloth or silk stuff.

ART. VIII. *New Mode of building Cottage Chimnies.*

Mr. SYLVAN,

HAVING lately built a small habitation behind a very large high building, in a spot exceedingly exposed to the high west and south-west winds, I was apprehensive that the chimnies, which are very low, (one of them not above sixteen feet from the hearth) would smoke; therefore, instead of building the inside of the chimnies as they generally are, wide at bottom and narrow at top, I did the very reverse, widening them all the way up; and by this means, or by sharp stoves which are closed all round, or both together, I have the satisfaction of finding that even in the highest storm they do not smoke in the least, except only the kitchen chimney, and that alone is carried up to the top of the high buildings adjoining. I am therefore inclined to think that chimnies so built, and which have no vent but for the smoke, will prove a certain means of avoiding one of the two great evils of life. Your's &c.

Near Leeds.

FUMI-FUGIUM.

ART. IX. *Review of Mr. Marshall's Minutes of Agriculture.*

[Continued from page 283.]

IMPLEMENTS, *December 26.*

"AFTER the seed-wheat was in the ground, I began to make out a list of implements. I have now completed it, collected them together, adjusted them for the winter, and called them all over. I find it so convenient, that I mean to repeat it twice a year in future; once after wheat, and again after barley seed-time; in or about November and May.

T H E L I S T.

Carriages and their Tackle.

- 2 Waggon,
- 1 Handy,
- 4 Dung-carts,
- 4 Dung-forks,
- 2 Dung-drags,
- 1 Shooting-bat,
- 1 Dung, or water-cart,
- 1 Sowing-cart,
- 2 Harrow-sledges,
- 2 Plough-sledges,
- 3 Pair of ropes,
- 1 Jack and grease-pot.

Ploughs and Tackle.

- 1 Trenching plough,
- 1 Break-up plough,
- 3 Team-ploughs,
- 2 Single-wheels,
- 3 Whip-rein ploughs,
- 2 Spare-shares,
- 2 Double-ploughs,
- 1 Sub-plough,
- Coulters,
- 1 Spare-copse,
- 3 Plough-hatchets.

VOL. IV.

R r

Rollers,

Rollers, &c.

- 1 Spiky roller,
- 1 Double plain roller,
- 1 Single plain roller,
- 3 Surfaces.

Rakes.

- 1 Round horse-rake,
- 1 Flat-horse-rake,
- 2 Hand-rakes.

Harrows.

- 1 Pair of round rough harrows,
- 1 Pair of flat rough harrows,
- 1 Pair of round fine harrows,
- 1 Pair of flat fine harrows,
- 3 Pair of common horse ditto,
- 1 Pair of man-harrows.

Drills, &c.

- 1 Ducket's draw-drill,
- 1 New drill,
- 1 Barley flute (see rakes.)

Hoes.

- 1 Berkshire shim and wheel,
- 1 Horse-hoe,
- 4 Drag hoes,
- 2 Hand-hoes.

Whippins.

- 7 Iron trace whippins,
- 2 Sets of hempen trace ditto,
- 5 Single hempen trace ditto,
- 1 double-chained whippin.

Harness.

- 20 Bridles,
- 16 Ox-collars,
- 15 Horse-collars,
- 10 Pair Horse-hames,
- 4 Pair of tugs,
- 5 Cart-saddles and cruppers,
- 4 Breechings,
- 4 Pair of Plough-traces,
- 12 Pair of long traces,
- 13 Back-bands, cruppers, hip-straps and pipes,

- 7 Pair of hempen harness-hames,

- 5 Pair of hempen traces,
- 3½ Pair of whip-reins,

Stable-Tackle.

- 8 Hempen halters,
- 4 Curry-combs,
- 4 Brushes,
- 1 Ox nose-hook,
- 3 Whips,
- 2 Chaff-baskets,
- 1 Chaff-box,
- 2 Chaff-sieves.

Field-Tackle.

- 1 Scythe,
- 9 Short-forks,
- 8 Hay-rakes,
- 1 Drag hay-rake,
- 2 Corn-forks,
- 3 Pitching-prongs.

Stack-Tackle.

- 3 Ladders,
- 2 Sail-cloths,
- 1 Mow-cutter,
- 1 Pair of steel-yards.

Barn-Tackle.

- 2 Flails,
- 7 Wooden riddles,
- 1 Wire riddle,
- 2 Sail fans,
- 1 Wicker fan,
- 2 Skreens,
- 3 Wire sieves,
- 2 Bushels,
- 2 Shoals,
- 2 Shovels,
- 32 Sacks,
- 1 Sack truck.

Sundry Tools.

- 1 Pick-axe,
- 1 Fold-pitcher,
- 1 Iron shovel,

1 Yard-scraper,
2 Scoops,
6 Couching-baskets,
4 Iron wedges,

1 Wedge-beetle,
A set of carpenter's tools,
Sundry smiths, coopers, collar-
makers, & bricklayers tools.

" Perhaps there are many petty implements of agriculture which are improveable; and though the improvements may be petty, yet when an implement is making, it had better be made well than ill.

" Some time ago I hit off a plough-whippin, which pleases me better than any I have seen; because it is strong, light, durable, and fit for any plough or harrow.

" A plough hatchet, too, I thought of, is much preferable to the common hammer.

" A large hoe I find useful for cleaning the yard, and very useful for opening cross-furrows."

" *Division of Farms. Jan. 8.* Perhaps a farm should be divided agreeable to the nature of the soils, if various.

" Arable land should lie in large, regular, rectilinear fields.

" The size of the fields should be as that of the farm.

" The farm-house should be near the farm-yard: the farm-yard near the barns; and the barns near the centre of the arable land.

" Manure is necessary to agriculture; stock necessary to manure; pasture and meadow land necessary to stock.

" A suit of pasturing paddocks are convenient about home: arable land should be near the barns and farm-yard. Meadows, woodlands, and sheep-walks, may lie at a distance, with less inconveniency.

" Fences are expensive incumbrances on a farm.

" *Therefore*—Had I a thousand acres of uniform soil, equally kind for grass or corn, lying on a level, within a ring fence, to divide and lay out into a farm, with convenient erections; I would proceed thus:

" Within the irregular figure, I would endeavour to inscribe a square or parallelogram, containing about four-fifths of the whole (were it 1000, or were it but 100 acres.) In the center of this I would erect, and round the erections, lay four paddocks.

" The margins I would convert into wood and grass-land: the grand area into four arable fields: the paddocks into pasture and garden-ground.

" The creeks and irregularities of the margins I would fence off, plough, and sow with seeds of trees and shrubs; leaving them to be nursed by nature and strong fences. The grass-land would be sheep-walk and hay-meadow, alternately. The ara-

ble, in four divisions, would, in perpetual uniform succession, receive the four stages of the universal round,* The paddocks too would relieve each other; always keeping three for pasturage or verdage, and one for cabbages, turnips, potatoes, and other domestic roots and herbage.

"But—were the soil various; some of it affecting corn, some grass; the surface irregular, &c. &c. I would endeavour to steer in the middle way between nature and convenience: I would endeavour to approach as near to regularity and method, as the nature of the soil and aspect would permit.

"But—were I to enter on a farm already inclosed and divided, and erections raised, I would endeavour to throw the arable into large divisions; to keep the hay-grounds and sheep-walks at a distance, and a few pastures about home.

"On principles like these, though undigested till now, I have proceeded since I commenced farming. I found two hundred and ninety-one acres of clay, strong loam, sandy loam, sharp gravel, and almost every intermediate soil, scattered over a country of five or six miles in circumference, divided into fifty-seven fields and fifty-four pieces, strewed over five or six detached common fields;—the whole the property of five distinct landlords.

"The crops and quondals, too, (the farms having been occupied by various tenants) were as straggling as the fields: here a patch of corn, there a piece of grass; here a rood of wheat, there a rood of barley, lying by the side of half an acre of pease or summer-fallow. This made the common-field land particularly teasing, and of course, first suggested the idea of *classing the pieces*—of considering the several scattered slips as one entire field; and of cropping each field with one entire crop.

"Thus, instead of sending a team to plough half an acre in one place, and then sending it a mile to finish its day's work in another; I now send two or three into a large field of fifteen or twenty acres, where, without interruption, special attendance or attention, they keep on till it is done: the same as if it were an entire enclosure.

"The conveniency of this soon started the thought of *classing the fields*, of throwing a number of small contiguous inclosures into one large division, considering this as one field.

"This plan I have been executing as fast as I could consolidate the crops with propriety. I have already classed them, and another year or two will, I hope, compleat my plan.

* Fallow, or fallow crop; spring corn; clover; wheat.

	Acres more or less.	Acres exclu- ding hedge and ditch.	Acres inclu- ding hedge and ditch.
A. Norwood-Fields. (<i>Clayey Loam.</i>)			
A. 1. Barn-Field, - - -	5		
A. 2. The Cradle, - - -	3		
A. 3. Middle-Field, - - -	$3\frac{1}{2}$		
A. 4. Foot-path Field, - - -	4		
A. 5. Little Field, - - -	$1\frac{1}{2}$		
B. Lower Barrets. (<i>Clayey Loam.</i>)		17	19
B. 1. Lower left-hand field, -	$3\frac{3}{4}$		
B. 2. Lower right-hand field, -	$2\frac{3}{4}$		
B. 3. Upper left-hand field, -	$4\frac{1}{2}$		
B. 4. Upper right-hand field, -	$4\frac{1}{4}$		
C. Pipers. (<i>Clayey Loam.</i>)		15	$16\frac{1}{2}$
C. 1. Lower Pipers, - - -	$2\frac{1}{4}$		
C. 2. Upper Pipers, - - -	3		
D. Upper Barrets. (<i>Clayey Loam.</i>)		5	6
D 1. Great Barrets, - - -	$7\frac{3}{4}$		
D 2. Little Barrets, - - -	2		
D 3. Woodside Mead, - - -	$1\frac{7}{8}$		
E. Lowlands. (<i>Clayey Loam.</i>)		12	13
E 1. Bailey's-field, - - -	$2\frac{7}{8}$		
E 2. Two pieces in Broad Mead,	$2\frac{5}{8}$		
E 3. Rays field, - - -	$4\frac{6}{8}$		
F. Blacklands. (<i>Sandy, Moory Loam.</i>)		10	11
F 1. Further-field, - - -	$4\frac{1}{4}$		
F 2. Hither-field, - - -	$5\frac{1}{4}$		
G. Eastlands. (<i>Strong Sandy Loam.</i>)		$9\frac{1}{2}$	$10\frac{1}{2}$
G 1. The Four Acres, - - -	$4\frac{1}{4}$		
G 2. The Six Acres, - - -	$5\frac{3}{4}$		
H. Home-field. (<i>Sandy Loam.</i>)		10	11
I. Brook-field. (<i>Strong Sandy Loam.</i>)		10	$10\frac{1}{2}$
K. Lower Meads. (<i>Clayey Loam.</i>)		12	$12\frac{1}{2}$
K 1. Three pieces in Broad Mead,	$1\frac{7}{8}$		
K 2. Leylands, - - -	$5\frac{1}{4}$		
K 3. Rivulet Mead, - - -	$11\frac{1}{2}$		
K 4. Small Profit, - - -	$6\frac{3}{8}$		
L. Upper Meads. (<i>Clayey Loam.</i>)		25	$26\frac{1}{2}$
L 1. The twenty Acres, - - -	$20\frac{1}{4}$		
L 2. Black-Horse Field, - - -	$4\frac{3}{4}$		
M. Clays & Haws. (<i>Sandy & Gravelly Do.</i>)		25	26
M 1. Seven pieces in hither Clay,	$5\frac{1}{8}$		
M 2. Seven pieces in further Clay,	$3\frac{1}{8}$		
M 3. Apple-Haw, - - -	$4\frac{1}{8}$		

		Acres	Exclud.	Includ.
M 4.	Palsmore Haw,	3 $\frac{1}{2}$		
M 5.	Middle Haw,	1 $\frac{1}{2}$		
M 6.	New Leaze,	4		
N. Adfcomb-house fields. (<i>Gravel and Gravelly Loams.</i>)			22	23 $\frac{1}{2}$
N 1.	House field,	5		
N 2.	Lower Castle Hill,	3		
N 3.	Upper Castle Hill,	3		
N 4.	Scrubs,	3		
N 5.	Long Six Acres,	4 $\frac{1}{2}$		
N 6.	Conduit Field,	4		
N 7.	The Nook,	1 $\frac{1}{8}$		
O. Rippinger. (<i>Gravel and Gravelly Loam.</i>)			24	26
O 1.	Eleven pieces in Common field,	13 $\frac{1}{2}$		
O 2.	Bench field,	2		
O 3.	Jackson's field,	2 $\frac{3}{4}$		
P. Upfield. (<i>Gravelly Loam.</i>)			18	19
P 1.	Rippinger-lane field,	4		
P 2.	17 pieces in the Common field,	12		
P 3.	Maple Stubs,	4		
R. Adfcomb Closes. (<i>Various.</i>)			20	21
R 1.	Pen-field,	2 $\frac{3}{8}$		
R 2.	Adfcomb Paddock,	1		
R 3.	Cart-house field,	2		
R 4.	Skelton's field,	0 $\frac{7}{8}$		
R 5.	Lower Brick Close,	2		
R 6.	Uppes Brick Close,	1 $\frac{3}{4}$		
S. Garden fields. (<i>Sandy Loam.</i>)			10	12
S 1.	A patch of	1 $\frac{1}{2}$		
S 2.	A patch of	1 $\frac{1}{2}$		
S 3.	A patch of	1 $\frac{1}{2}$		
S 4.	A patch of	1 $\frac{1}{4}$		
S 5.	Two patches of	1 $\frac{1}{2}$		
T. The Paddocks. (<i>Various.</i>)			7 $\frac{1}{2}$	8
T 1.	The Orchard,	0 $\frac{1}{4}$		
T 2.	The Angle,	1 $\frac{1}{4}$		
T 3.	Foot-path field,	6 $\frac{1}{8}$		
T 4.	Cherry Mead,	5 $\frac{1}{8}$		
Stray lands.			13	14 $\frac{1}{2}$
			4	4 $\frac{1}{2}$
			269	291

Thus

Thus, one hundred and five distinct patches are compacted into eighteen sizeable divisions; with this advantage, that they may easily be reduced again to small fields, when occasion requires: but with these heavy disadvantages, compared with entire fields, there are two and twenty, instead of four or five acres, taken up by fences.—The influence of the sun and wind is weakened. The teams are retarded by the fences, at least one acre in four or five, if strait; if crooked more;—and the fences, in defiance, breed weeds and vermin. But in point of attention, and of time saved in fetching and carrying of implements, they are equal to entire fields; and this last is an expence upon a straggling farm, which no one but the holder of such a farm can form an idea of. The attendance and attention too, are material: I would sooner manage a well classed farm of five hundred acres, than an unclassed one of two hundred and fifty. The labour of fencing, likewise, is considerably lessened.

To class a farm judiciously, is a work of some time: two or three years at least. Clover I find the most convenient agent; for on this wheat may be sown the first, second or third year; and of course, one field can wait till another, and all of the same class or division be ready. The fallow crop may be missed, or two be inserted, &c. &c.

Another very great conveniency of classing a farm is, the field-accounts are more easily kept.

Perhaps, another general rule which ought to be observed in classing a farm, is this: if part of it be wet, and part dry, there should be two sets of arable divisions. Thus, I have laid out one suit of arable at Adscumb, and another at home; that when the latter is too wet to work, the teams may not lie idle: besides, wet land may be sown earlier in autumn, and later in spring, than dry; and, in the reverse, dry land may be sown later in autumn, and sooner in spring, than wet: and perhaps, the most delicate part of management lies in keeping the teams in constant work, and sowing in season.

In this point of view, a varied soil is preferable to one which is uniform: but a varied soil requires a various management, and a variety of implements. Therefore, a multi-soil farm is managed at a greater expence, and calls for closer attention. But with every inconvenience, I would rather farm on a varied soil, than on one uniformly wet: there is one very valuable advantage, a farmer can change his seed without going to market.

Had I, however, the choice of a farm, it should be a dry loam, culturable by whip-reins.

[To be continued.]

ART. X.

ART. X. *List of the Fairs in England and Wales, in the Month of November.*

1. **E**ARITH, Ford-street, Coventry, Llanbiddar, Lytcham, Newark, Prefcot, Rothbury, Wadhurst, Walden. 2. Altrincham, Bletchingly, Buckland (Devonsh.) Chard, Downham, Hoxne, Poole (Dorset.), Toddington, Wokingham, Wye. 3. Bromfield, Campden, Swaffham, Talgarth. 5. Appleshaw, Beverley, Lansehell. 6. Barwick-hill, Helmsley-Black-moor, Manchester, Mortimer, Newton-Abbot, Newcastle (Staffordsh.) Newport (Monmouthsh.) Sutton (Hants.) Tregony, Whitchbury. 7. Horley, Middleham-moor, Rochdale, Talfarn, Trefriew. 8. Aberconway, Alford, Bingham, Biddenden, Blackwater, Blandford, Buckingham, Barton-Underwood, Chilham, Chipping-Norton, Cirencester, Dalverton, Dunmow, Hatherleigh, Helstone, Hertford, Hexham, Kendall, Keighley, Knotsford, Llanedy, Llanrhiader, Leeds, Leominster, Lidney, Maffingham, Pensford, Romsey, Stamford, Stratton, Sutton (Warwicksh.) Warwick, Wiston. 10. Caerwyth, Fokingham, Ruthin. 11. Ashburton, Brandon, Cambron, Langhorne, Lenton near Nottingham, Liverpool, Macclesfield, Newburgh (Anglesea) Nunny, Penrith, Pwely, Wakefield, Wingham. 12. Almwen, Bisley, Blakeney, Brumpton, Camrass, Chelmsford, Chirk, Dunstable, Fairfield, Halchaston, Kellington, Kilgarren, Kilham, Lanwinio, Little-Mountain, North-Moulton, Penmorfa, Pentraoth-Mon, Rowland's-Castle, Sawley, Stelling, Stoney-Stratford, Three-Lords, Wakefield, Wooburn (Bucks.) 13. Biddeford, Bishop's-Castle, Dinasmondely, Epping, Farnham, Huntingdon (Herefordsh.) Kingston, Leek, Loftwithiel, Loughborough, Mayfield, Testinivig, Treacastle, Wilton, Wotton-Basset. 14. Allentown, Carmarthen, Elestmere, Llanerillo, Montgomery, Port-hathway. 15. Ottely. 16. Andover, Caernilly, Pool (Montgomerysh.) 17. Brecknock, Bridgeden, Headon, Ingleton, Launceston, St. Leonard's near Bedford, St. Leonard's (Suffex), Malling, Newport (Essex), Otterford, Warfop, Wellington (Shropsh.) Wells, Yeovil. 18. Cuckfield, Dorstone. 19. Albrighton, Cross-in-hand, Truro. 20. Dolton, Feltwell, Llanusydd, Petworth, Ruabon, Skipton. 21. Aberwingregin, Garfang, Llanybiddar. 22. Battle, Bawtry, Boscastle, Bow (Devonsh.) Brigstock, Clunn, Crowle, Darlington, Deddington, Dolegelly, Dover, Fairbach, Fokingham, Fillingham, Guildford, Haltwhistle, Hempton, Langport, Llangellon, Lawhader, Marlborough, Martin's-town, Mold, Monmouth, New-Buckenham, Newcastle, (Carmarthensh.) Pembroke, Rippon, Rugby, Scarborough, Shaftbury, Shifnal, Skipton, Stamford-bridge, Standish, Storrington, Warkworth, Wem, Wetherby, York, and every other Thursday in the year at York. 23. Witney. 24. Coleford, Egglwysfach, Holt (Norfolk), Rickmansworth. 25. Chesterfield, Elstow, Frome, Machynleth, Thwaite. 26. Castle-Town, Doncaster, Llandovery, Llanfechel, Little-Dean. 27. Hartlepool, Horsham. 28. Fenny-Stratford, Gloucester, Harlow, Hook-Norton, Lincoln, Northampton, Sheffield, Spaldick. 29. Ashborne, Llangerniew. 30. Alfrinton, St. Austle, Belchamp St. Pauls, Broad-Hembury, Bromhall, Buntingford, Cardiff, Chippenham, Cubley, Culliton, Enfield, Flint, Fringe, Hempsall, Llanfannan, Maidenhead, Milbourn, Moreton-Hampstead, Northwold, Warrington, Wells.

Moveable Fairs in the Month of November.

Tuesday before the 1st, at Pershore. Tuesday after the 1st, at Woodstock. First Monday, at Lampetre. First Thursday, at Poole (Dorsetshire.) First Friday, at Eccleshall. Friday before the 8th, at Litchfield. Thursday before the 11th, at Chappel-in-le-Firth. Saturday before the 11th, at Howey. Monday after the 11th, at Gifsbrough, Loddon. Thursday before the 12th, at Porlock, Knighton. Thursday after the 13th, at St. Columb. Monday after the 16th, at Woodcote. Friday se'nnight before the 22d, at Reeth. Tuesday before the 22d, at Egton. Monday after the 22d, at Bakewell, Egglewysfwrw. Thursday after the 22d, at Langtown. Monday before the 30th, at Gorfynon. Last Friday, at Chipping-Norton.



T H E
FARMER'S MAGAZINE.

NOVEMBER, 1779.

A DISSERTATION *on the Progress and present State of*
AGRICULTURE. [Continued.]

C H I N A *Continued.*

THE Emperor is well aware, that he presides over a people who submit to the laws no longer than while they promote their happiness. He is sensible, that if the spirit of tyranny, which is so common and infectious in other countries, should seize him but for a moment, such a violent opposition would be raised, that he would be expelled from the throne. Accordingly, finding himself invested with the supreme authority by a people who observe and criticise his conduct, he is far from attempting to erect himself into an object of religious superstition, and doing just as he pleases. He does not violate the sacred contract, by virtue of which he holds the sceptre. He is convinced that the people are so well acquainted with their rights and the manner of defending them, that whenever a province complains of the Mandarin who governs it, he recalls him without examination, and delivers him up to a tribunal, which proceeds against him if he is in fault: but should he even prove innocent, he is not reinstated in his employment, as it is deemed a crime to have drawn upon himself the resentment of the people. He is considered as an ignorant tutor, who should attempt to deprive a father of the love his children bear him. This compliance, which in other countries would nourish perpetual discontent, and occasion an infinite number of intrigues, is not attended with any inconvenience in China, where the inhabitants are naturally disposed to be mild and just, and the constitution of the state is so ordered, that its delegates have seldom any rigorous commands to execute.

The necessity of justice in the prince tends to make him more wise and intelligent. He is in China, what one would gladly believe princes in all countries were, the idol of his people. It should seem that their manners and laws conspired to establish this fundamental principle, that China is a family of which the Emperor is the patriarch. He does not possess his authority as a conqueror, or a legislator, but as a father: as a father he governs, rewards, and punishes. This pleasing sentiment gives him a greater power than the tyrants of other nations can possibly derive from the number of their troops, or the artifices of their ministers. It is not to be imagined what esteem and affection the Chinese have for their Emperor, or, as they express it, their common, their universal father.

This public veneration is founded upon that which is established by private education. In China, the father and mother claim an absolute right over their children at every period of life, even when raised to the highest dignity. Paternal authority and filial affection are the sources of every thing in this empire: by these the manners are regulated, and they are the grand tie that unites the prince to his subjects, the subjects to their prince, and citizens to one another. The Chinese government has gradually arrived at that point of perfection from which all others seem to have finally and irrevocably degenerated: I mean the patriarchal government, a government established by nature itself.

Notwithstanding this sublime system of morals, that for so many ages has contributed to the prosperity of the Chinese empire, it would probably have experienced an insensible change, if the chimerical distinctions allowed to birth had destroyed that original equality established by nature among mankind, and which ought only to give place to superior abilities and superior merit. In all the states of Europe, one class of men assume from their infancy a pre-eminence independent of their moral character. The attention paid them from the moment of their birth, gives them the idea that they are formed for command: they soon learn to consider themselves as a distinct species, and being secure of a certain rank and station, take no pains to make themselves worthy of it.

This system, to which we owe so many indifferent ministers, ignorant magistrates, and bad generals, has no place in China, where nobility does not descend by hereditary right. The figure any citizen makes, begins and ends with himself. The son of the prime minister of the empire has no advantages at the moment of his birth, but those he may have derived from nature. The rank of nobility is sometimes conferred upon the
ancestors

ancestors of a man who has done signal services to his country; but this mark of distinction, which is merely personal, dies with its possessor, and his children derive no other advantage from it than the memory and example of his virtues.

In consequence of this perfect equality, the Chinese are enabled to establish an uniform system of education, and to inculcate correspondent principles. It is no difficult task to persuade men who are upon an equal footing by birth, that they are all brethren. This opinion gives them every advantage, which would be lost if a contrary idea prevailed. A Chinese, who should abstract himself from this common fraternity, would become a solitary and miserable being, and wander as a stranger in the heart of his country.

Instead of those frivolous distinctions which are allotted to birth in almost every other country, the Chinese substitute real ones, founded entirely on personal merit. A set of wise and intelligent men, who are honoured with the title of the learned mandarins, devote themselves to the study of all sciences necessary to qualify them for the administration of public affairs. None can be admitted into this respectable society, who are not recommended by their talents and knowledge: for riches give no claim to this honour. The mandarins are at their option to fix upon proper persons to associate with them; and they never chuse any person without a previous and strict examination. There are different classes of mandarins, the succession to which is regulated by merit, and not by seniority.

Out of the class of mandarins, the Emperor, according to a custom as ancient as the empire, elects ministers, magistrates, governors of provinces, and officers of every denomination who are called to any employment in the state. As his choice can only fall upon men of tried abilities, the welfare of the people is always lodged in the hands of those who are worthy of such a trust.

In consequence of this institution, no dignity is hereditary except that of the crown; and even that does not always devolve to the eldest son; but to him whom the Emperor and the council of mandarins judge most worthy. By this method, a spirit of virtuous emulation prevails even in the imperial family. The throne is given to merit alone, and it is assigned to the heir only in consideration of his abilities. The Emperors rather chuse to appoint a successor from a different family, than to intrust the reins of government to unskilful hands.

The viceroys and magistrates enjoy the affection of the people, at the same time that they partake of the authority of the sovereign; and any mistakes in their administration meet with

the same indulgence that is shewn to those of the supreme legislator. They have not that tendency to sedition which prevails in this part of the world. In China there is no set of men to form or manage a faction: as the mandarins have no rich and powerful family connections, they can derive no support but from the crown, and their own prudence. They are trained up in a way of thinking that inspires humanity, the love of order, beneficence, and respect for the laws. They take pains to inculcate these sentiments into the people, and secure their attachment to every law, by shewing them its useful tendency. The sovereign passes no edict that does not convey some moral or political instruction. The people necessarily become acquainted with their interests, and the measures taken by government to promote them; and the better informed they are, the more likely they will be to remain quiet.

Superstition, which excites disturbances in all other countries, and either establishes tyranny, or overthrows government, has no influence in China. It is tolerated, injudiciously perhaps, by the laws; but at least, it never makes laws itself. No person can have any share in the government who does not belong to the class of literari, which admits of no superstition. The bonzes are not allowed to ground the duties of morality upon the doctrines of their sects, nor consequently to dispense with them. If they impose upon some part of the nation, their artifices do not affect those whose example and authority are of the greatest importance to the state.

In China, the manners take their complexion from the laws, and are preserved by common usage, which is likewise prescribed the laws. The Chinese have a greater number of precepts, relating to the most common actions, than any other people in the world. Their code of politeness is very voluminous; the lowest citizen is instructed in it, and observes it with the same exactness as the mandarins and the court.

The laws in this code, like all the rest, are formed with a view of keeping up the opinion that China is but one great family, and of promoting that regard and mutual affection in the citizens, which is due to each other as brethren. These rights and customs tend to preserve the manners. Sometimes indeed, ceremonies are substituted for sentiment; but how often are they the means of reviving it! they compose a kind of constant homage that is paid to virtue; and is calculated to engage the attention of youth. This homage preserves the respect due to virtue herself; and if it sometimes leads to hypocrisy, it encourages at least a laudable zeal. Tribunals are erected to take cognizance of transgressions against the customs; as well as to
punish

punish crimes, and reward merit. Moderate penalties are inflicted upon crimes, and virtue is distinguished by marks of honour. Honour is accordingly one of the principles that actuate the Chinese government: and though it is not the leading one, operates more strongly than fear, and more feebly than affection.

The spirit of patriotism (that spirit, without which states are mere colonies, and not nations) is stronger perhaps, and more active, among the Chinese, than it is found in any republic. It is common to see them voluntarily contributing their labour to repair the public roads; the rich build places of shelter upon them for the use of travellers, and others plant trees there. Such actions, which are proofs of a beneficent humanity rather than an ostentation of generosity, are far from being uncommon in China.

The tame animals of China are oxen, sheep, hogs, horses, and camels. The wild ones are elephants, which may be easily tamed, tygers, leopards, boars, buffaloes, bears, particularly a very large species called the man-bear, mules, camels, the musk-deer, or cat, a great variety of stags, among which is the odoriferous roebuck, (so called from its having a bag of very strong musk) and a very small stag, bred only in the province of Yunnan, but sold to the people of distinction in every part of the empire, who keep them in their gardens for their extraordinary beauty, with plenty of game.

Many of the insects in China are remarkably beautiful, particularly the beetles, the colours of some of which are so extremely vivid that the ladies wear them by way of ornaments on their heads. The most useful of this sort of the animal creation to the Chinese, are their prodigious numbers of silk-worms and bees, the first of which produce great quantities of silk, and the latter of wax and honey. Besides these two valuable species of insects, they have another, which produce a more beautiful kind of wax than that formed by bees. These little creatures build their combs on the tops and branches of some particular trees, and in the cells of these combs they lay their eggs, which in the spring produce small worms. The proprietors of these trees gather the wax, and make it into cakes, which are quite transparent.

The birds in this empire are eagles, cranes, storks, birds of paradise, pelicans, peacocks, pheasants, geese, swans, ducks, and a numberless variety of others.

The sea, rivers, lakes, and canals, abound with the greatest plenty and variety of fish; and the fish-ponds of the curious are full of that species which is now well known to us under the denomination of the gold and silver fish.

The

The vegetable productions of China are corn, and grain of all sorts, particularly rice, in the culture of which the Chinese are very curious, as they are likewise in that of cotton, from which two articles the chief part of them are clothed and fed; sugar, tobacco, and fruits, viz. oranges, grapes, figs, pomegranates, pine-apples, olives, and many others. Though the olives are of a fine flavour, they never extract any oil from them, but make use of seeds for that purpose. The vallies abound with variety of canes, junks, and bamboos of exquisite beauty. Vast quantities of medicinal roots, among which is the famous ginseng, once thought peculiar to this empire, but within these few years, it has been discovered in North America. It was likewise formerly supposed to have been an universal remedy, though now found to be only a common root. of no great virtue. A prodigious number of shrubs are also found in China, the principal of which produces the Tea so famous in Europe. There is only one species of this plant, the difference of green and bohea tea depending entirely upon the nature of the soil, the culture, and the manner of drying the leaves. It is cultivated in the following manner: any number of seeds, not less than six, nor exceeding twelve or fifteen, are promiscuously put into one hole, made four or five inches deep in the ground, at certain distances from each other; the reason of planting so many together is, because they contain a large proportion of oil, which being soon liable to turn rancid, scarce a fifth part of them germinate. The seeds thus sown would vegetate without farther trouble; but it is usual to remove the weeds, and manure the land; and at the end of three years from the time of sowing, but not before, the leaves are fit to pluck, being then beautiful and in their prime. In about seven years the shrub rises to the height of about six feet; but as it then bears few leaves and grows slowly, it is cut down to the stem, and the exuberance of fresh shoots and leaves, which are by this means produced the succeeding summer, fully recompenses the owners for their former loss and trouble; this manner of treating the shrub is deferred by some till it is ten years old. There are three proper seasons for gathering the leaves, the first being about the latter end of February, or beginning of March: the leaves then plucked receive the appellation of powdered tea, because they are pulverized by the Chinese, and sipped in hot water; at the time of gathering, these leaves are but a few days old, and hence their scarcity and price are so great, that they are disposed of to princes and great personages only, whence it is likewise called imperial tea. The second gathering is about the latter end of March or beginning of April; at which period some of the leaves are come to per-
fection,

section, while others are not arrived at their full growth; both, however, are promiscuously gathered, and are afterwards sorted into different classes, according to their age, size, and goodness; the youngest particularly are carefully separated, and often sold for imperial tea; the leaves collected at this time are called Chinese tea, because it is infused and drank after the Chinese manner. The third gathering is made about June, when the leaves are very plentiful and full grown. This is the coarsest kind of tea, and chiefly drank by the lower class of people. Some confine themselves to two gatherings in the year, first and second, which answer to the preceding second and third. Others again have only one general gathering, which they make at the same time with the preceding third or last gathering; but the leaves collected are separated into different sortments. The persons hired for gathering the tea, being accustomed to follow this employment as a means of their livelihood, are very expeditious. They do not pluck them by handfuls, but carefully one by one; and tedious as this method may appear, they are able to collect from four to ten or fifteen pounds each, in a day.

For the curing and preparing the tea, public drying-houses are erected, and so regulated that every person who either has not suitable conveniences, or does not properly understand the process, may bring his leaves at any time to be dried. These buildings contain from five to ten or twenty small furnaces, about three feet high, each having at top a large flat iron pan, either square or round, bent up a little on that side which is over the mouth of the furnace, which at once secures the workman from the heat of it, and prevents the leaves from falling off. There is likewise a long, low table, covered with mats, on which the leaves are laid, and rolled by workmen who sit round it. The iron pan being heated to a certain degree, a few pounds of the fresh leaves are put into it, and soon begin to crack, when it is the business of the workman to shift them as quick as possible with his bare hands, till they grow too hot to be easily endured; at which instant he takes them out with a kind of shovel, resembling a fan, and throws them on the mats to the rollers, who taking small quantities at a time, roll them in the palms of their hands in one direction, while others are fanning them, that they may cool the more speedily, and retain their curl the longer. This process is repeated two or three times or oftener, before the tea is put into the stores, in order that all the moisture of the leaves may be thoroughly dissipated, and their curl more completely preserved. On every repetition the pan is less heated, and the operation performed more slowly and cautiously; after which the tea is separated into the different kinds,

kinds, and deposited in the store, either for exportation or home consumption. The finer kinds are put into conic vessels like sugar loaves, made of tuturaque, tin, or lead, covered with neat matting of bamboo; or into square wooden boxes, lined with thin lead, dry leaves and paper, in which manner it is sent to foreign countries. The common tea is put into baskets, out of which it is emptied, and packed up in boxes or chests, as soon as it is sold to the Europeans.

No country in the world produces a greater number of curious trees than China, and among the first of these the tallow-tree claims our attention. It is about the height of a large cherry-tree, having a smooth bark, crooked branches, & reddish heart-shaped leaves. The fruit is contained in a rind, which when ripe, opens in the middle, and contains a white kernel, about the size of a hazle nut, which has all the properties of tallow, and when manufactured with oil, is made into candles by the natives, but they smell exceedingly strong, and do not give a clear light.

The varnish tree is another remarkable production; it is of a small size, with a whitish bark, and a leaf which resembles that of the wild cherry-tree. The gum, or varnish, issues from the body of the tree drop by drop; if an incision is made, it produces a greater quantity of liquor, but then it kills the tree. This varnish is much esteemed by artificers in wood, as it takes all colours alike, and if well managed, neither loses its colour or lustre, by the age of the wood to which it is used, or the changes of the air.

There is another tree resembling that of a walnut, which yields a liquor that is also made use of for varnish, when boiled up with litharge: but both these trees and the product of them are of a poisonous quality.

Some of the trees in this empire are much esteemed for the durable quality of their wood, and others for the beauty of it. Among the former is the iron-wood, which the Chinese imagine will never decay, and therefore make great use of it in their buildings. It is a species of cedar, and grows with a strait trunk to an amazing height. The colour of the wood is somewhat darker than that of an oak, and of a much heavier nature. The tree which is held in the highest esteem for its beauty is the rose-wood; being of a reddish black, and full of fine veins: it is always used for cabinets, and the most curious sort of joiners' work.

[To be continued.]

ART. II. *On making of SEA BISCUIT.*

[Continued from Page 301.]

AS soon as the dough is in the condition before described, it must immediately be made into cakes. Each cake must weigh fourteen ounces of dough, that, when baked, it may weigh eight, or at most nine ounces.

The dough is cut into pieces of that weight, which pieces are afterwards turned upon the table with the hands into balls, to make it harder still: then it is flattened with a kind of rolling-pin, the middle of which is thicker than the two ends, observing, however, to make the cake something hollow in the middle; as for the edges, they must be even, and be above one-third part of an inch thick.

The cake being thus formed, they make the mark, a cross, or some other figure, upon it, with an instrument for that purpose; after which they turn it on the other side, laying it upon the table, as near as possible to those that are already made; finally, a little before they put it into the oven, they prick it four or five times with an iron instrument that has three points.

Before they prick the cakes and put them into the oven, they must let them rest half an hour upon the table, or even more, if need be, that they may have time to rise, which the baker ought to know and direct.

At *Brest*, they put the cakes into the oven, as soon as they are pricked, without letting them rest or rise, because they pretend they are sufficiently furnished with leaven, and in that case they do not cover them.

For the first oven-full, they must begin to heat the oven, as soon as they begin to work the dough with the rolling-pin; and they know that the oven is hot, when the roof of it is of a whitish ash-colour. But for the other oven-full they do not warm the oven, but after they have rolled the dough, or a little sooner or later, according as the baker thinks fit, or as the dough requires it, and the oven is not to be quite so white.

It must be observed, that for the first oven-full they may heat the oven with green wood, because it has time to dry and burn: but, for the others, the driest wood is the best, because the dough requires to be soon put into the oven, lest it should dry too much.

The oven must not be above two feet and a half high, taking a perpendicular line from the key-stone of the roof to the center of the floor: the floor must have bricks well burnt, two inches thick, and eight inches square. In such places where

they have broad flat stones, which can bear the fire, they use them rather than bricks; the mouth of the oven ought to be two feet wide, by two in the base: the bottom or floor must have five feet and a half in depth, by nine in breadth. The fire should be put at two feet distance from the mouth of the oven, to come directly to the mantle-piece of the chimney: that mantle-piece must be raised about eight inches higher than the mouth of the oven. The oven must be covered.

After the fire is taken out of the oven, and it has been well swept, the baker thrusts the cakes into the oven the one after the other, on an iron or wooden shovel, observing to place them regularly, that there may be no void space between them.

He afterwards shuts the oven very close, and puts a few shovels-full of live coals against the door: a quarter of an hour after he opens the oven, to see whether the biscuits begin to colour: if he find it sufficiently coloured, he leaves the oven open for half a quarter of an hour, during which he takes away the coals from before the door, which he shuts again. When the cakes have remained in the oven a full quarter of an hour longer, he takes out some of the cakes which were first put in, and breaks them to see whether they be baked. When they are so, the edges are reddish within; and the little crumb which remains in the middle, is spongy but dry. They put their hand upon that crumb, and, if they observe any moisture in it, it is a sign that the cakes are not baked enough; and they must leave them in the oven, as long as they judge it necessary, to dry up all the moisture.

As soon as the biscuits are taken out of the oven, they carry them out into the *store-room*, which has been well cleaned, and warmed during four days. The *store-rooms*, to be good, should be built over the oven, wainscoted at top and bottom, and on all sides, and the joints of the boards well caulked.

When the *store-room* is full, it is never to be opened but to take out the biscuit. It requires a month to cool it, and another month to make it stale enough to be sent on board.

Observe, that it is customary in *Provence* to put the biscuit into a large airy loft, where they reckon it cools better and more naturally than in the *store-rooms*, where it is shut up with all its heat; and they take care to shut the windows of those lofts in damp or rainy weather.

It ought to be shipped in dry weather, in flat-bottom boats, very tight, in which it should not continue long.

The *store-rooms* in the ships ought to be well wainscoted and caulked, and warmed during six days and six nights with
live

live coals, after which they must be left to dry three or four days, that the moisture drawn in by the fire may evaporate.

The store-rooms must afterwards be lined with good mats from top to bottom, and on all sides: it has been observed in *France*, that the mats made in *Provence* are better for that purpose, than those of the west.

After the biscuit is put into the floor-rooms, and they have been closely shut, they must not be opened but one after another, as occasion requires, and the biscuit must be taken out only at the opening of the scuttles.

ART. III. *Ill Consequence of following bad* PRECEDENTS
in FARMING.

THAT experience is the best criterion of a Farmer's knowledge has been generally acknowledged; but then experiment and experience must in some measure differ as much as a part from the whole. We are too apt to be misled by the success of one crop, injudiciously cast into the ground; to pursue the same mode to our great disadvantage. The error of such conduct has been exemplary to myself in several instances—You must know, as I went to farming without a professional education, I thought by looking over my neighbours' hedges I could not fail of learning all I wanted—perhaps if I could have confined my eyes to the hedges and fields of good farming only, I might have done tolerably well; but as there are more bad than good farmers, so there is more land ill managed to be viewed than what is properly or judiciously cultivated. I saw one farmer sow wheat after black oats, and the crop he said was tolerable good, *considering*; another sowed wheat after wheat, and he also had a good crop, *considering*;—now Mr. Sylvan, I did not understand this expression, *considering*, and I was blockhead enough to follow their example; the consequence was, that I found what they termed a good crop, *considering*, was a very bad crop in reality.—Another piece of wrong information we young farmers meet with, is, the large crops set down from one instance in a man's life time; this frequently induces us to pursue right or wrong the same management, and that too at such an expence as could not possibly be paid, even if the crops which these people dream of were realities, and not visions.—An industrious thorough-bred farmer will do more business with five men and five hundred pounds, than I can with ten men and a thousand pounds. I am busied about trifles, while he alone is constantly minding

the main chance without almost a glance sideways to any other object.

I wish some of your correspondents would collect a course of experiments, such as an honest man can abide by, and can practice on terra firma—not like those written by ———, which were certainly taken from the tops of the castles he lodged at in his airy tour.

T. S. L.

ART. IV. *Answers to the Queries respecting Cow-Clover, &c. inserted in Page 252.*

COW-CLOVER, and Cow-Grass, I conceive, have not any specific distinctions, as all the grasses and trefolls (trefoliums) are almost indiscriminately cropt by neat beasts. These distinctions must therefore be arbitrary and local, as the *Beta*, or Quaking-Grass, is in some counties called the Cow-Quake. The subject here meant is unquestionably the *Me-lympetrum Arvense*, Purple Cow-Wheat, which hath no affinity whatever with either clover or grass, but is a food for cattle; and as such it has been recommended to cultivation. It is a scarce plant, perhaps not to be found in five counties of the kingdom; and certainly is cropt close in every pasturage where it may spring. It is rarely found but on difficult acclivities, or under the protection of thorns, furze, or brambles, and doth not arrive at maturity until a late period of the year. It is a large plant, and bears a spike of purple flowers with numerous floral leaves of the same colour; its seeds have a near resemblance to wheat, from whence without doubt its name was derived. I have not yet seen it in any botanic garden; perhaps it is not to be bought in any seed-shop. I sent some of the seeds of this plant to W. Curtis, a curious botanist in London, and Demonstrator of Botany to the Apothecary's Company, and he may probably have raised it.

I have also sent a specimen of the plant to the Secretary of the Bath Society for their inspection. I am, &c.

Norwich, Oct. 18, 1779.

J WAGSTAFFE.

ART. V. *Another Answer to the Queries respecting Cow-Grass.*

[In a Letter to the Secretary of the BATH SOCIETY.]

THE subject of the queries inserted in the Farmer's Magazine, p. 252, has long engaged my attention, and I have frequently wondered that many sensible Farmers and Seedsmen, with whom I have conversed, should know so little of a plant, for

for which they have so great a demand. If the following observations should prove in the least degree satisfactory, I shall be highly pleased; and am, &c.

W. C.

1. *Cow-Clover*, or *Cow-Grass*, are I doubt not the same plant, but *Cow-Wheat* belongs to a very different genus, the *Melanopyrum* of Linnæus.

2. There are growing wild in this country two species of clover, much resembling each other in size, and the colour of their blossoms, the one the *Trifolium Pratense*, the other the *Trifol. Alpestre* of Linnæus; the former the common broad-leaved clover, the latter the long-leaved or creeping rooted clover, for it differs from the common broad-leaved clover not only in having longer and narrower leaves, but also in having a root which is not only perennial, but also creeping.—Although I know with certainty, that the seed of the broad-leaved clover is sold in the London shops for the true *Cow-Grass*, yet I have often suspected that the different name of *Cow Grass* might originally have been given to the long-leaved sort, from its possessing some quality superior to the other, and the seed not having been collected, the other has supplied its place.—However this be, the ascertaining which of the two is the best is certainly an object for the society, if it should be found that the *alpestre* is in any respect superior, the society may be the means of bringing it into general use; if it should prove inferior, the distinction of *Cow-Grass* will be abolished, and the Farmer taught to depend on broad-leaved clover as before.

3. The seeds of the *Cow-Wheat* are not to be had in any of the London shops: from the little experience I have had in cultivating this genus of plants, they do not seem to promise much, yet I would by no means wish to prevent a trial of them.

N. B. I have sent a growing root of the true long-leaved Clover, a loomy soil appears to suit it best.

ART. VI. On improving a Coarse Meadow.

Mr. SYLVAN,

If you think the following experiment will do any service, the inserting will oblige

T. L.

I Had a piece of meadow or pasture land about seven years before laid down in a slovenly manner with oats and grass seeds; my crop of hay, in the very foul parts, was so small, that several of my neighbours advised me to plough it, and after cleaning it thoroughly, lay it down again—but this I was unwilling

willing to do; I therefore, in the spring of 1776, gave it a good dressing of coal ashes and lime, mixed well together, without being wetted before they were laid on. I put about ten bushels of lime to thirty bushels of coal ashes, and with this quantity dressed an acre; the profit of that year's grass was more in goodness than in quantity; but after harvest I gave it a smart dressing of a compost composed of street dirt and stable dung, which has had all the effect I expected or wished for; my hay is good, and my crop as large as the country on the same kind of land generally affords.

ART. VII. *On the use of Parsley sown on a large Scale for the purpose of feeding Sheep.*

Mr. SYLVAN,

I WAS lately in company with some gentlemen, where the discourse turning on agriculture, one of them mentioned the advantage of parsley sown for sheep-feed. As I have never known it tried, I should be glad if some of your correspondents would favour me and the public with some accurate account and experiment on the matter.

Essex, Oct. 10, 1779.

C***.

ART. VIII. *To procure Good and Clean Wheat Crops.*

Mr. SYLVAN,

AS you seem to encourage all well-meaning men, who wish to improve our national husbandry, permit me for once to solicit a place in your work for a letter, though it may not, perhaps, be so valuable as some others, written by your more enlightened correspondents.

I am, it is true, but a young man; yet I have made some remarks in farming, which in my humble opinion, may prove not unuseful to many of your readers.

It is now upwards of seven years that I have been tenant of a considerable farm in Essex; but as there are some particular circumstances attending this farm, I must beg leave to say a few words on the subject.

The soil, which is for the most part a fine mellow loam, or what is in general called a good wheat soil, was in very good heart, and not impoverished; yet the last tenant broke on this farm, and the landlord lost by him near two years rent; for his crops of wheat were continually damaged by smut, let him take
what

what care he would of the seed, and were besides often laid, and the land got very foul, though he was not sparing of his fallows.

On the contrary, since I have occupied this land, it has borne large crops of good sound wheat, with very little smutty corn, and barley, oats, peas, beans, and other things in proportion. What will appear still more surprising is, that I do not lay on half so much dung as he did.

It will now, perhaps, be necessary to explain this seeming paradox. At no great distance from the farm lives the landlord, who is a man of fortune, and drives a set of horses. This gentleman keeps no land in his own hands, so that he was for many years obliged to buy all the straw he used for the litter of his stables, which amounted to a very considerable quantity: however, when the last tenant of this farm came in to it, having been a servant in the family, he offered to supply the 'Squire with straw for his stables, provided he might have all the dung, except what the gardener had occasion for. The 'Squire thought this a good proposal, and the Farmer imagined he had the best of the bargain; so the matter was soon settled.

Now, gentlemen, you are to understand, that the 'Squire kept, besides seven coach-horses, a stable of hunters, several road-horses, and a pack of hounds; so that there was made on his premises, in a year, an incredible quantity of rich dung.

The farmer imagined he was now in a fair way of making his fortune, for his father had taught him, that the man who can command dung is always sure of large crops; but this did not prove true in the present case.

To proceed; my predecessor went on ploughing his land, got his fallows in good order, dressed them largely with dung, and always sowed them with wheat.

His crops of this noble grain, however, by no means answered his expectations: his wheat constantly looked well and promising in the winter and the early part of the spring of the year; but as it advanced, it grew rank, and at harvest was either run all to straw, and was besides very smutty, or else if a heavy shower of rain happened to fall, it was lodged, matted, and grew. This was indeed a very mortifying circumstance, but our farmer could find no remedy for it. He several times, without success, tried folding some sheep on his wheat; but this part of husbandry, for want of skill, he managed so badly, that he lost two entire crops, for he had scarcely the return of his seed at harvest. This could never hold long; so that in the end, he was, as I said before, broke and ruined.

This man never could be persuaded that any part of his loss was to be attributed to the dung he laid on his land, though he constantly

constantly manured it with the horse-dung before it was half rotten, and without any mixture to allay its great heat: this kept the soil in a constant state of fermentation, and stocked it with weeds, inasmuch that when I took possession of the farm, some of the soil was mouldy, and stunk, it was so rank.

I will now inform you of my method of management, that you may be enabled to judge how far I was benefited by the errors of my predecessor.

I found sixty acres of fallow ready for sowing with wheat: these, as the land was rank, I sowed with the winter tare, which, I knew by experience, would choak the weeds, and abate the rankness of the soil. In some parts, where the soil was not so rank, I ploughed in the tares in order to sow wheat over them; in other parts I suffered the tares to stand for a crop, which, however, was not considerable, they ran so much to straw or haulm.

When the tare were off, I got the land instantly in order, and sowed the whole with wheat, of which I had a better and cleaner crop than had been known upon the land for upwards of seven years before; this all my neighbours acknowledged; however it was neither clean enough, nor considerable enough, to satisfy me. Some of your readers may perhaps wonder what I did with my tares, as but few are sold at the country markets; but I must inform them, that I live within ten miles of a sea-port town, whither I sent them at various times, in order to their being carried by sea to London.

I am to observe to you, that I continued the agreement of giving the Squire straw for his dung; but I made a very different use of it from my predecessor.

I make it a rule never to manure for wheat, or sow wheat on a fallow. I do not indeed allow many fallows on my land; and when I do, I generally sow my fallow with barley, to which I allow four or five ploughings. This commonly yields me a large return, and I have a good crop of wheat after it.

This however is not my general method; for I am very fond of the hoeing husbandry, to practice which, in some degree, is the only infallible way of keeping land clean. To begin then with my method:—

I never lay dung alone on my land, if it be ever so rotten: but as soon as I can get any long dung from the Squire's, I carry it to my compost-heap, where it is mixed in alternate layers or beds, with fresh virgin earth, (if I can get it) lime or chalk, lime rubbish, scourings of ditches and ponds, turf, leaves of trees, and all the dung and offal of my family, of the hog-yard, the poultry-yard, and the dog-kennel. As to my

my pigeons-dung, I always preserve it to mix with foot, and use the mixture as a top-dressing for my wheat, whenever it happens to be too backward in the spring,

But to return to my compost: I have always several distinct heaps of different ages, and I sometimes leave it three years before I use it, and never lay on any under two years old.

When I have got a plot of ground in order, I give it a thorough good dressing of this compost, which I immediately plough in. I then sow it with some crop that requires hoeing, such as horse-beans, broad-beans, or white or grey peas. During the whole summer, I take care to keep these crops very clean by hoeing, especially if the season is rainy; and I am particularly cautious in preventing any of the weeds from perfecting their seeds.

When my hoeing-crop, which generally more than pays me all my expences, is off the land, I immediately get it into as fine tilth as I possibly can, by repeated ploughings, and then sow it with either wheat or barley, whichever is likely to pay me best; for little as some of your readers may think of it, barley, when it is sown on good land well prepared, is very frequently as profitable a crop as wheat.

By thus sowing my wheat after a hoeing crop with dung, I have always a good return of clean corn, often five quarters on an acre; and my land will still be in heart enough to give me a reasonable crop of oats; after which, without any fallow, comes my hoeing-crop, &c.

When I sow barley after the hoeing-crop, I suffer wheat to follow it; and then it is that, if I find it necessary, I give the wheat in the spring a top-dressing of foot mixed with pigeons-dung.

I sometimes allow only six pecks of wheat-seed to an acre: this is when I sow over it, in the spring of the year, eighteen pounds of broad clover-seed, which I harrow in with a pair of very light harrows; and it does not in the least damage my wheat-plants. I leave the clover only two years on the land; for the second year, after I have mown the first crop for hay, I suffer the second to grow very rank, (having given my land a slight dressing from my compost dung-hill the preceding year) which I plough in, and over it sow wheat, to be harrowed in on once ploughing.

These crops of wheat are smaller in quantity than any others I get, but the grain is finer, plumper, brighter, and heavier, generally selling for more at market, as being always very clean and clear from seeds of weeds.

In my methods of farming, some particulars are to be noted. In the first place, as my crops succeed one the other very quick, I am under a necessity of having all my stubble extirpated before I give the land the first ploughing after the crop is off. If it is a wheat or bean-stubble, I generally have it all ploughed up by hand by women and children: barley and oat stubbles I have torn up by a pair of loaded drags, and afterwards gathered into heaps and carted to the compost-heap. This I do to prevent the stubble from being buried by the plough, and from growing mouldy in the land; from which mouldiness I have great reason to think smut often proceeds.

Another thing to be noted is, that I allow less seed to my land than most of my neighbours, my quantity being from seven to nine pecks of wheat, from nine to twelve of barley, and about twelve of oats, to an acre of land; but it is always to be presumed that the seed I sow is good. If any Farmer should imagine that these quantities are too small, let him suppose every wheat-plant to occupy a space of six inches square, which is small enough: let him then calculate how many such spaces there are in a square acre. When he has done this, let him proceed to count how many grains of wheat there are in a pint, which multiply by the number of pints in nine pecks, and he will find by the result that I, in fact, allow too much seed.

I intend this letter only as a sketch of my method of farming; and, in truth, it was chiefly written with a view of satisfying some of my neighbours, who are readers of your work. These Farmers saw that my crops were better than those of my predecessor, yet wondered why they should be so, for they know not the method of managing their dung to the best advantage; nor are they at all acquainted with the value of hoeing-crops, though they see so many Farmers in the county fond of sowing them. Another thing puzzled them, which was, how a man could possibly carry on the business of a farm without fallowing all his land once in three years.

If you give this letter a place in your valuable work, I may possibly, at some future time, communicate to you some other piece from a different motive.

I am,

Your constant reader,

A YOUNG FARMER.

ART.

ART. IX. *A list of the most remarkable Weeds, which infest the Arable and Grass Lands in England, ranged according to their duration, with the times of their flowering, and hints for the best method of destroying them.*

MR. SYLVAN,

AS different methods are necessary in the extirpation of different weeds, and it is of some importance to know which of them are perennial, and which only annual, I have sent you a list of the most remarkable weeds which infest the arable and grass lands in England, ranged according to their duration. A pomp of names is carefully avoided, and those which Mr. Hudson has given in his *Flora Anglica* are chosen: it is a misfortune that many Farmers will not know what plants are meant by some of these names: but it is a misfortune scarcely to be avoided, since the English names of vulgar plants are so various; altering not only with the county, but with the place, and even sometimes depending on the whim of a common labourer.

By far the greater number of annual weeds infest the arable lands: in grass lands the perennials chiefly flourish. The reason is obvious; in the former, the roots are continually destroyed by cutting; in the latter, they are made to spread by cutting or eating down the stems. Perennials usually require more than a year to come to perfection; and the seeds by which annuals are propagated, are not so readily received into the more compacted turf, as into land whose parts are constantly undergoing a separation.

The annual Weeds which infest Arable Lands and Gardens are chiefly these.

Ivy-leaved 'Speedwell, or small Henbit. April. This has a slender stalk leaning towards the ground, with slender blue flowers, like those of the nettle.

Annual Darnel-grass. This is a rank coarse grass, growing among corn, especially wheat, principally in moist and damp soils.

Bearded Oat-grass, Bearded wild Oats, or Haver. These are a very troublesome evil plant, and we know at present of no way of eradicating them from a field of wheat but hand-weeding. They grow as high as the crops in which they are found, and some lands are very subject to them, so as to appear almost a crop of oats mixed with wheat.

Little-field Madder. May.

Cleavers, or Goose-grass. May. This is very common in arable land, and is very well described in the second vol. of the Farmer's Magazine, page 266, and page 229. The juice is recommended for the scurvy.

Parsley-piert. May. This is a small plant, not very common, or capable of doing much mischief, unless much neglected.

Pearl-wort, or Chickweed Breakstone. This small weed is very apt to infest gravel-walks; and if it be suffered to seed, will increase prodigiously, and grow very troublesome.

Bastard Alkanet. This and the Pearl-wort are rough hairy plants, flowering in May and June.

Small wild Bugloss. June. This is chiefly found among wheat in arable land, and does not become much the object of the Farmer's anger.

Male Pimpernel. May.

Venus's Looking-glass, or coddled Corn-violet. June.

Dodder, Hell-weed, Devil's-guts, or Scald. July.

This is found chiefly on beans; it strangles the crop, and draws its nourishment from the plants about which it entwines itself. It infests also hops and flax.

Goosefoot of several kinds flourishes on dunghills, and is often suffered by the farmers to grow there unmolested, by which the dung is much exhausted. August.

Small Corn Parsley. August.

Fool's Parsley. This is generally allowed to be a strong poison, and is very common in gardens.

Shepherd's Needle, or Venus's Comb. June.

Common Chickweed. The pest of gardens.

Knot-grass. This plant is remarkably full of seed, and propagates itself surprisingly: it will grow any where, particularly in places that are much trodden. The sparrow, and other small birds, are very fond of its seeds. June.

Black Bindweed. June.

German Knot-grass, or Annual Knawel. August.

Purple-flowered Chickweed, or Spurrey; on sandy lands. June.

Cockle. June.

Corn Spurrey. August.

Petty-Spurge. July.

Sun-spurge, or Wart-wort. These are both very common in gardens. July.

Red-poppy, or Corn-poppy. June.

Wild Larkspur. This hath increased so much of late years in Cambridgeshire, as to become one of the common weeds among the corn.

Adonis

Adonis Flower, Pheasant's Eye, Red Maithes, Red Morocco.
Frequent in the corn-fields of Kent.

Corn Crowfoot. The seeds of this do not come forth till
the second year after sowing. June.

Upright Ground-ivy.

Red Archangel, or Dead Nettle. Common in gardens.

Great Henbit.

Narrow-leaved All-heal.

Nettle-hemp, or Hemp-leaved Dead Nettle.

Red Eye-bright.

Fluellin, sharp-pointed, and round pointed.

Gold of Pleasure; among the flax. June.

Shepherd's Purse.

White-flowered Charlock, with a jointed cod. June.

Yellow-flowered ditto.

Wild-Mustard, or Charlock. May.

These three, particularly the last, are the *opprobrium* of the
Farmers: they who will not be at the pains to extirpate them
by hand, might do well at least to run a scythe over their
crops, while the weed is in flower, and before their spring-
corn (for it is that which is chiefly troubled with it) is got up
too high.

Fumitory. April.

Yellow Vetchling; very common in the corn-fields about
Cambridge.

Common Sow-thistle. June.

Common Groundsel.

Corn Marigold; the pest of light lands: it is not fond of
dung, and chalk will generally destroy it. In Denmark there
are laws for the extirpation of this weed. June.

Common Camomile, or Corn Feverfew. June.

Stinking May-weed. June; somewhat earlier than the last.

Blue-bottles. July.

Pansies, or Heart's Ease.

Lesser Nettle. August.

Orache, of several kinds; along with the Goosefoot, on
dunghills, and in gardens. August.

Annual Weeds in Pasture-Ground are only the following.

Purging Flax. May.

Knot-grass. This spreads chiefly by the path sides, and
where dung or rubbish has lain.

Yellow Rattle, or Cocks-Comb, vulgarly Penny-grass; in
moist meadows. This keeps its ground, for the seeds are ripe
at the time of cutting hay. June.

Eyebright; in dry pastures.

Red

Red Eye-bright.

Heart-trefoil, or Clover. This is always mixed with clover, and particularly with the hop-trefoil, or nonfuch. It is a harsher plant, full of hard, prickly seed-vessels, and therefore not a good food for cattle: it is easily known from other clovers, by its seed-vessels, and the spots upon its leaves.

Common creeping Mouse-ear. May.

Smooth-succory Hawk-weed. June.

Star-thistle; in dry barren pastures, and by way-sides. July.

Hairy Sheep's Scabious; on high pastures.

Biennial Weeds in Corn.

Viper's Bugloss, called, in Cambridgeshire, &c. **Cat's-Tail.** It infests the corn very much every third year. July.

Mithridate-mustard, or Bastard-crefs.

Common Melliot. The seeds of this ground along with wheat are known to give bread a very strong taste. June.

Spear-thistle. July. This, with many other kinds of thistles and other weeds, with downy seeds, are suffered to stand on banks, way-sides, and fallow lands, in order to serve for a constant supply of weeds. If the waste places were run over with an old scythe, this evil would soon be prevented.

Biennial Weeds in Pastures.

Wild-carrot, or Bird's nest. June.

Cow-parfnip. July.

Common-mallow. May.

Rough-succory Hawk-weed. July.

Stinking Hawk-weed. June.

Musk-thistle. July.

Wild Carline-thistle. June.

Perennial Weeds in Corn.

Field Fox-tail, or Mouse-tail-grafs.

Common Wheat-grafs, Dog's-grafs, Quick-grafs, or Couch-grafs. As every piece of this most detestable creeping weed will grow, there is no way of destroying it, but by ploughing up the ground thoroughly, picking it out, and burning it.

Common Field-Scabious. August.

Small Bind-weed. This spreads its roots deep and wide; and as every piece of it will grow, it is no easy matter to eradicate this pernicious plant.

Bladder Campion, White Corn-Campion, Spatling Poppy. July.

White Campion. May,

Small Bramble, or Dewberry-bush. June.

Corn-

Corn-mint. August.

White Archangel, or Dead Nettle; chiefly in gardens and under hedges.

Corn Rest-harrow, or Cammock. The roots of this mat together with great strength, and are therefore very troublesome where the land is to be ploughed for corn. This property, however, makes it an excellent plant to set on sea and fen banks, to keep them firm and compact. July.

Tree Sow-thistle. August.

Way-thistle. Fallows are usually well overspread with this weed, whose downy seeds are easily spread by the wind. July.

Great Knap-weed, or Mat-felon. Its roots are very stubborn and hard. July.

Corn Horse-tail.

Perennial Weeds in Pastures.

Devil's bit. June.

Great plantain, or Waybread. June.

Ribwort, or Ribwort Plantain. June.

Yellow Ladies Bed-straw, or Cheese-renning. It is a vulgar notion, but a false one, that this herb will turn milk. The good women are fond of putting some favourite plant into their rennet, and thus attribute to it a quality which it has no right to claim. July.

Cowslips or Pagils. April.

Round-leaved Bell flower. August.

Lesser Throat-wort, or Canterbury bells. July.

Meadow Saxifrage. August.

Burnet Saxifrage. August.

Crow Garlick. This gives milk and butter an insufferable strong taste. June.

Broad-leaved Dock. July.

Common Sorrel. May.

Sheep's Sorrel.

White Saxifrage, or Sengreen. May.

Agrimony. June.

Drop-wort. Hogs are fond of its roots. July.

Meadow-sweet. June. Only found in very moist meadows. Goats are very greedy of this plant, which neither horses nor kine will touch.

Tormentil, or Stepfoil. June.

Creeping Crowfoot, and Bulbous Crowfoot, or Buttercups. May.

Upright Meadow Crowfoot. June.

The three last, which occupy so much room in almost all meadows,

meadows, are not eaten by any sort of cattle, being of a very hot and acrid nature; so that the notion of their giving butter a yellow tincture is as false as it is vulgar.

Pilewort, or Lesser Celandine. April.

Meadow Rue. June.

Bugle. May.

Self-heal. August.

Common Yellow Toad-flax. July.

Common Ladies-smock, or Cuckow-flower.

Crowfoot Cranebill. June.

Common Broom; in dry pastures. May.

Rest-harrow, or Cammock; in barren grounds.

Dandelion. April.

Rough Dandelion. May.

Yellow Devil's bit. August.

Long-rooted Hawk-weed. May.

Dwarf Carline-thistle. July.

Common Coltsfoot; in watery days. March.

Common Butter-bur; in moist meadows. March.

Ragwort, or Seagrim. Nothing touches this plant; though a perennial, it comes up easily by hand, when young, or when the ground is moist. July.

Fleabane; in most places. August.

Common Daisie. I do not find that any cattle willingly eat of this plant, which occupies so large a part of our pastures.

Greater Daisie, or Ox-eye. May.

Common Yarrow, or Milfoil. The roots of this creep abominably, especially where rubbish or dung has been laid. May.

Common Knap-weed, or Matfellow. July.

Orchises of various sorts; as

Butterfly Orchis. May.

Male Fool-stones. May.

Female Fool-stones. May.

Male-handed Orchis. May.

Female-handed Orchis. June.

Red-handed Orchis. June.

Purple late flowering Orchis. June.

Little purple-flowered Orchis. May.

Man Orchis. June.

Frog Satyrion. May.

Triple Ladies Traces. August.

Bee Orchis. June.

} In moist meadows.

} In dry pastures, and chiefly in chalk.

Carexes of various sorts; in low meadows and fenny grounds. These are all very harsh: they are, however, mowed to fodder cows with in winter.

Common

Common Nettle.

Adder's Tongue; in moist meadows.

Female Fern, or Brakes; on dry barren land. It strikes its roots far and wide, and is difficult to eradicate even with the plough.

Mosses of various sorts. Old pastures are most infested with these. Ploughing is the only effectual way of destroying them.

I have added the time in which most of the foregoing plants begin to flower; because about that time it is proper they should be destroyed.

I am, &c. P. B. C.

A Correspondent wishes to know if there be any truth in the poisonous effects said to belong to Ground-Ivy, or whether such accounts are fabulous.

ART. XI. *Thoughts on the poisonous effects of Muscles.*

THE poisonous effect, consequent on eating muscles, does not proceed, as I apprehend, from any ill principle in the muscle itself, nor from any noxious quality in those little crabs frequently found in them; neither does it proceed from any property derived from the copperas beds, near which muscles are sometimes found; nor from the malignity of any corrosive mineral whatever, nor from any heterogeneous mixture of animal salts that muscles may meet with in the stomach of the eater, for the following reasons:

1. That no poisonous quality is inherent in the substance of the muscle, is evident from this: that multitudes have made the muscle a part of their food, for many years, without finding the least inconvenience; on the contrary, have found them a wholesome, nourishing, and even a delicious food.
2. That the poison which produces the effect, if any such there be, does not reside in the crab, is equally demonstrable; for some will swallow as many as can be brought them, without the least scruple; and, indeed, there is but little reason to suppose that a quantity of poison, sufficient to produce such sudden and apparent ill effects, can be contained in so small a crab, when those of much larger dimensions are daily eaten with safety by all sorts of people, on those coasts, where they are found in plenty.
3. That it cannot be owing to any vicious quality imbibed from the copperas-beds, near which they are found, because

the same effect is frequently produced by eating muscles gathered many hundred miles from any copperas-beds; and by those of the whitest and most inviting kind; nor can a quantity of vitriolic or mineral pungent salts, sufficient to poison a person, exist in dressed muscles, without discovering itself either in the liquor, or upon the palate when the muscles are eating.

And 4. It cannot proceed from any heterogeneous mixture of animal salts in the stomach of the eater, because the sudden swelling of the person affected is a symptom that never follows from such a cause.

It is further observable, that particular people only are affected by the eating of muscles, and those differently at different times. I am myself acquainted with some persons who never could eat muscles without being ill; but who can now eat them boldly, and without the least apprehension of any bad consequences: and I have myself eaten them from my infancy, and yet they have never once disagreed with me, nor with any of my family, save one.

I am therefore of opinion, from all the observations I have been able to make, that the disorder, proceeding from the eating of muscles, happens from the ready disposition of some glutinous particles on the surface of the muscle to adhere to what it touches of the stomach; and that the real cause, of what is generally thought the poisonous effect, is only the cohesion of the membrane of the muscle, like a piece of leaf gold, to the inner coat or lining of the stomach, which, when once dislodged, the patient almost instantly recovers.

The reason why some may be more liable than others to be affected in this manner, may be owing to the disposition of the stomach itself, the viscosity of whose contents may be a concurrent cause of the disorder.

The usual symptoms that follow such an adhesion are, great oppression of the *præcordia*, strangulation, anhelation, short cough, tingling ears, watery eyes, swelled face and hands, with efflorescence and itchings in the skin; most of which symptoms I have known to follow the eating of raw hot bread, swallowing the skins of grapes, and even from eating French beans. In all these cases, gentle emetics seldom fail to relieve the patient; but as sudden disorders of this kind sometimes prove fatal before help can be called in, oils of any kind, mixed with warm water, taken into the stomach, may, in some cases, have a good effect: for, as in loosening a plaister from the skin, oil is often the easiest way of removing it, so, in cases

cases of an adhesion to the internal coat of the stomach, oil may have the like effect.

Were people of weak stomachs inclined to make the muscle a part of their necessary food, as in some places they are plenty, and are certainly nourishing; I would advise them, by way of prevention, first to prepare their stomachs by gentle emetics, and then to eat of them sparingly, with much bread and butter; and, by frequently eating them in this manner, those people, with whom such wholesome shell-fish have disagreed, have been brought to eat them without danger. J. C.

ART. XII. *Review of Mr. Marshall's Minutes of Agriculture.*

[Concluded from Page 319.]

IN the digest we meet with the following observations on the present Farmers, with which we shall conclude our review of these minutes.

“ Present Farmers may be divided into three principal classes.

The ABORIGINAL,
The SCIENTIFIC,
The AERIAL.

“ The first farm from Custom:—the second, from Experiment and Observation;—the last, from Books and Bales.*

ABORIGINAL FARMERS.

These are subdivisible into
The ILLIBERAL SLOVEN,
The ILLITERATE ECONOMIST,
The APE-GENTLEMAN,
The SUBSTANTIAL,
The GENTLEMANLY.

“ The first of these is a sullen, designing, incommunicative Being, who holds his profession as a family secret, though his management be execrable;—his fields are foul,—his crops wretched,—his live stock pitiable; his whole life is a scene of cunning, toil, poverty and wretchedness.

* *Baley*.—The etymology of this term is generally misunderstood, and its orthography erroneous. It comes directly (not by the way of France) from the anglicised Saxon word Bale—“ Misery and Mischief.”—Hence the adjectives baley, baleful, balific, &c.—Its orthography, therefore, is Baley, not Bailey,—nor Bailiff;—and its etymological meaning, a mischievous servant.

"The second is equally illiberal, equally disingenuous, equally incommunicative, has more cunning, and is a better farmer.—He keeps his land *tolerably* clean, and in *tolerable* heart;—his crops, and every thing around him, are *tolerable*;—and he gets rich in proportion to his Rent, Taxes, and Luck. This is the money-getting farmer, whose agriculture the Scientist ought to endeavour to excel

"The third is the Economist grown rich, or the successor to an enriched œconomist. He looks on his purse:—to him it seems very large;—it contains from fifteen hundred to two thousand pounds;—and he is not aware of any thing else being wanted to make him a *Gentleman*! his vanity swells, and thus he *sets up*:—He commences wine-bibber at fair and at market;—his sons hunt the best horses in the neighbourhood—perhaps follow a snug pack of their own;—his wife and daughters copy those of the Apothecary, the Parson, and the 'Squire;—they ape them in dress, and outdo them in entertainment;—his whole family is extravagant without gentility, and profuse without complacency. Luxury creates indolence and false pride;—indolence, a laxity of management;—and false pride persuades him to be ashamed of that employment, which led him, perhaps, from hard labour.—His lease expires—his landlord doubles his rent—the prices of produce fall—his good-luck changes to bad—he grows poor, lives in debt, and dies a beggar; leaving an indolent family to crawl through a life of poverty and toil—or worse!

"His is a more despicable character than that of the despicable Sloven.—It is he who raises, or helps to raise, the price of land, and with it the prices of provisions.—It is he who disseminates, or assists in disseminating, luxury among the sons of rusticity, and a false spirit of farming among the *Daughters* of speculation.

"The fourth—the Substantial—springs from a long line of œconomists and industrious housewives. He is possessed of a fortune independent of farming;—he is the Lord of the village he lives in; and deals out comfort or oppression to his poor neighbours. He is the counterpart of the foregoing:—for although he is purse-proud, he is at war with every thing gentlemanly. He would rather be thought hospitable than polite;—and would rather be first among his dependants, than subordinate among gentlemen. But his is a character worthy of his country, and the community has not a better member; because, his sons are robust, and his daughters notable: and his whole family is a pattern of rural decency, and their manners a relic of ancient hospitality.

"This

" This is a man whom the Scientist ought to court.—For though he is a Customist, and, of course, cannot communicate his general management,—he knows the customs and usages of the country he lives in, and can obviate a thousand petty difficulties.

" The last—the Gentlemanly—is the Son of the Substantial Farmer.—He has had education enough to think for himself, knows enough of the world to communicate his sentiments, and is liberal enough to associate with men of liberality.

" This is the man whose friendship is an acquisition to the Scientist:—for him he can understand, and by him he will be understood;—and this is a satisfaction worth some pains to acquire. But, notwithstanding his education, his liberality, and knowledge of mankind, he can never be a genuine Scientist.—He may improve, but can never perfect;—because, he is prejudiced by the Custom of his ancestors, and the country he happened to be bred in, whose Errors he has not only received as immutable Truths, but his whole life has been employed in the practice of them. The Scientist knows nothing but what proceeds directly from Analysis, Experiment, and Observation;—and yet they have an obvious alliance.—The Customist may afford the Scientist matter for experiment, and the Scientist may return him the useful result of his experience.—If it be possible for the Scientist to receive material assistance from any man, it is from the Liberal Customist.

It is not meant that each Customist bears exactly some one of these characters; but it is apprehended that these are the predominant characteristics of Aboriginal Farmers.

THE SCIENTIST.

" This is the Man—(no matter whether born heir to wooden shoes or a coronet) whose Parent—Preceptor—and Patron, is Nature; him he obeys,—him he reveres,—him he contemplates,—him he admires,—him he mentally adores; as soul of the creation, as sole, comprehensible, source of his existence.

" He views the present world.—Here, he sees a treacherous ruffian gang, in specious masquerade, hacking down law, liberty, and life, to storm the unstable fortress of power! there a tinsel giddy throng, with gait voluptuous, flaunting away to the Temple of Ostentation. In yonder deep morals, a dabbling, dashing shoal; floundering on to the Hoard of Riches: and through yon oaken grove, a peaceful few, walking towards the

the Field of Quiet, bordering on the now impenetrable forest of nature.—These few he joins, and there he sits down satisfied.

“ He has acquired the useful part of human knowledge; and agriculture he esteems the most useful and the most abstruse of useful sciences.

“ He believes that the Customists, collectively, are far advanced on the road of perfection; but he knows nothing in agriculture, which proceeds not directly from analysis, experiment, and observation.

“ He esteems self-attendance and close attention, even to the meereft minutia, absolutely necessary to common management; nor thinks the manual operation of the humblest department beneath the man.

“ Agriculture is his study, his recreation, and his pecuniary profession; for though he courts not superfluous riches, he holds self-interest, in a state of commerce, synonymous with self-preservation. But while he views himself, he loses not sight of the country nor the world he lives in.

“ He wishes for universal plenty.

“ He wishes to see the terrene world cloathed in luxuriance.

“ He wishes to see the various soils of his country emulous to shoot forth abundance to his countrymen.

“ He wishes to see each occupied by the Vegetable which affects it; and collectively, by such as are most immediately subservient to the natural necessities of man.

“ On the contrary, he wishes not to see the vegetative elements inactive, nor exhausted by useless Vegetables; nor the Vegetable creation dissipated by superfluous animals, and suffered to revert to soil, without being immediately, or secondarily, human food.

THE AERIALIST.

“ These are his leading characteristics:

“ He is constitutionally volatile, speculative, and credulous, and habitually bookish. He has acquired a smattering of the lighter branches, the twigs of human knowledge; and apes Genius, though void of penetration and judgment.

“ He has read the *Tours*, and seen the *Patent-Plough*! and sallies forth Knight-errant of Agriculture, to rescue her from the hands of barbarism and boors! like another *Quixote*, from bridge he flies to castle, and from castle to windmill, with equal success; his ridiculous orders are still more ridiculously executed; he changes his books changes his baley, and changes his plan of management; but all in vain: the phantom
flies

flies before him; at length, wearied with pursuit, he deigns to look behind him; when lo! at a distance, he sees Present Agriculture sitting at her ease, with a sneer on her countenance, in a spacious field of flowing corn; he beholds her, astonished! instead of a starving, puny wretch, he perceives her to be a hale, decent, respectable personage; the chimeras of vast improvement and vast profit vanish; and he has the mortification to see himself deservedly laughed at by the very persons he affected to contemn. Tired out and ashamed of his burden, (if not already sunk beneath it) he shifts it on to the shoulder of his sanguine friend, and laughs in his sleeve—without comfort.

“Generally, the writer believes, but he may not be a judge, he therefore hopes, that these sketches of present farmers are drawn without favour or affection; and without envy, hatred, malice, or any kind of uncharitableness: His meaning is to serve the cause of English Agriculture, and he heartily wishes

“Improvement to the CUSTOMISTS,

“Increase to the SCIENTISTS, and

“Reformation, or, total Annihilation, to the AERIALISTS.”

[On the whole, we meet with many useful observations as well as childish remarks, which must necessarily happen when a man puts down all the minutes of his daily practice; but what we most dislike is the affectation and singularity of his language, which is such, that no common farmer can understand, and even men of learning must disapprove.]

ART. XII. *On the property of BEARS-FOOT for Worms in Children.*

THERE are two kinds of Bears-foot in England. One is a plant of two feet high, with dark leaves, and a multitude of whitish flowers, sometimes a little purpled at the edge. This is common in gardens, and is in full flower in February. It is a poison, and was known as such to Tragus, Dodonæus, and all the old writers. The other is a low plant, scarce a foot high, with fish green leaves, and only one or two flowers which are green. This is the true bearsfoot, which is recommended with great justice against worms. The other being more common, has been used by mistake in its place, and to this the death of many children have been owing. There is the more reason for caution, because the poisonous one is the kind often sold in the markets.

ART.

ART. XII. *List of the Fairs in England and Wales, in the Month of December.*

1. **H**YTHE, Ingatestone, Penrice, Rotherham, Tutbury.
2. Spotty. 3. Ashton-under-Line, Bettws, Louth, Rhayador, Talgarth. 4. Atherstone, Dursley, Lamborn, Sandwich, Stafford, Tenby, Wenlock. 5. Carnarvon, Penybout, Pluckley.
6. Bodmyn, Builth, Cornhill, Cranborne, Exeter, Gressingham, Launceston, St. Nicholas, Northwich, Sidland, Stoke (Norfolk), Tockington. 7. Ceriggy-Druidion, Clithero, Pocklington. 8. Llaneliom, Leicester, Ludlow, Malpas. 9. Bradfield. 10. Bewdley, Bolney, Lanon, Newport (Salop.) Tarperry.
11. Aberfraw, Abingdon, Amptill, Baldock, Bewdley, Bolney, Boston, Brackley, Chawley, Cobham, Collingburn Ducis, East-Grinstead, Gargrave, Harloch, Kimbolton, Kirton, Langadock, Llanrwst, Narberth, Ofwestry, Petersfield, Presteign, Ringwood, Rochester, Ross, Stratton, Tavistock. 12. Bettws, Gringley, Shrewsbury. 13. Knaresborough. 14. Thirsk, Trecastle. 15. Namptwich, Pains-Castle. 16. Dolegelly, Newn, Toddington.
17. Arundel, Grantham, Higham-Ferrers, Hornsey, St. Neots, Spalding, Wallingford, Woodstock. 18. Truro, North-Tawton.
19. Beaumaris, Bedford, Cardigan, Northampton, Wooton-Basset. 20. Bradford (Yorkshire.) 21. Boxford, Bradford (Yorkshire,) Droitwich, Grinton, Highbickington, Kirby-Lonsdale, Laycock, Penryn. 22. Bradford (Yorkshire,) Newport-Pagriel. 24. Hawarden, Llanwenen. 26. St. Asaph, Beckley, Corwen. 28. Bridgewater, Cockhill. 29. Stonehouse.

Moveable Fairs in the Month of December.

First Monday, at Gresford. First Saturday, at Pontefract. Second Friday, at Barnstaple, Leyburn. Second Saturday, at Newmarket (Flintshire.) Monday before the 11th, at Newark. Saturday before the 12th, at South-Moulton. Wednesday before the 10th, at Comb St. Nicholas. *Wednesday after the 12th, at Amberbury. Saturday fortnight before the 21st, at Tichfield. Monday before the 21st, at Ledbury, Thornbury. Thursday before the 21st, at Kettering. Wednesday three weeks before the 25th, at Week St. Mary. Second Saturday before the 25th, at Helstone. Tuesday se'nnight before the 25th, at Bedale. Thursday before the 25th, at Caerphilly. Saturday before the 25th, at Alnwick. The first whole week before the 25th, at York. First Wednesday in every month, at Rygate. Last Tuesday in every month, at East-Grinstead.



T H E
FARMER'S MAGAZINE.

DECEMBER, 1779.

—♦♦♦♦♦—
A DISSERTATION on the Progress and present State of
AGRICULTURE. [Continued.]

I N D I A.

THE vast country of India may be divided into India beyond the Ganges; and India within the Ganges, the empire of the Great Mogul, or Indostan.

INDIA beyond the GANGES.

This peninsula contains eleven kingdoms, viz. Azem, Tipra, Arrakan, Pegu, Ava, Siam, Malacca, Cambodia, Cochin China, and Tonquin.

AZEM, situated on the east of the Mogul's dominions, on the north of Ava, and on the west of the lake Chiamay, is one of the most fertile kingdoms in Asia, producing every thing necessary for the support of human life. It contains mines of gold, silver, lead, and iron, the property of which the King has reserved to himself, on condition of not levying any subsidies on the people. Great quantities of coarse silk are also produced there, especially a particular sort spun by a little insect resembling a silk-worm, which, when manufactured, bears a prodigious fine gloss, but it is not lasting. Two sorts of gum-lack are found in this kingdom, the best is of a red colour, and used by the natives in painting their linen; the other is made use of to varnish cabinets and make sealing-wax.

TIPRA, of which we know very little except the name, is situated a little on the north of Arrakan. The only trade carried on with this place consists of a very bad species of gold, and a

coarse kind of silk, both which the inhabitants barter with the Chinese for silver.

ARRAKAN, which lies to the south of Tipra, enjoys a very salutary air, and is prodigiously fertile and pleasant; but though situated in so warm a latitude, it freezes very intensely when the wind blows from the north-east.

PEGU is situated between the 110th & 116th degrees of east longitude, and between the 14th and 19th degrees of north latitude, being about 350 English miles in length, and almost the same in breadth. This kingdom is very salutary and fertile, the soil being enriched by the inundations of the river Ava; and it also abounds in elephants, buffaloes, goats, hogs, all sorts of game, particularly stags, and exceeding fine poultry.

AVA, according to some accounts, is about 765 miles in length, and 575 in breadth; but according to others it is about 800 miles long, and 250 broad. Indeed the best accounts relative to this kingdom are imperfect, for being very little frequented by Europeans, it is not even known, for a certainty, to whom it belongs. It is in general a flat country, and very fertile, yielding rice, fruits, and a variety of animals both wild and tame. It also contains mines of silver, lead, and copper; and Ava, the capital, carries on a great trade in musk and jewels; the latter are principally rubies and sapphires.

LAO, or LAOS, of which Jangoma was formerly a part, is about 482 English miles in length, and 202 in breadth: the country itself is flat, but surrounded on all sides by mountains. The lands are in general fertile, and, being watered by a great number of canals, produce excellent rice. Oxen and buffaloes are in great plenty, and the number of elephants is so great, that the people are said to have taken their names from them. The other productions of this kingdom are gum benzoin, or benjamin, precious stones, gold, silver, tin, lead, copper, sulphur, brazil-wood, quick-silver, musk, silks, camblets, callico both blue and black, and cotton spun and unspun.

SIAM is about 834 English miles long, and 400 in breadth where widest, but in some places it is not above half so much. This kingdom, though divided by a ridge of mountains that is continued till it meets with the rocks of Tartary, is so prodigiously fruitful, that many of its cultivated lands yield two hundred times more than others. The corn, collected as it was at first produced, without care and without trouble, lost as it were to nature, falls off and perishes in the field where it grew.

in

in order to vegetate again in the waters of the stream that flows through the kingdom.

There is, perhaps, no country where fruits grow in such plenty and variety, or are so wholesome, as in this delightful spot. Some are peculiar to the country; and those which are equally the produce of other countries, have a much finer smell, and are much higher flavoured, than in almost any other part of the world.

The earth, always covered with these treasures, which are constantly springing up afresh, also conceals, under a very thin surface, mines of gold, copper, loadstone, iron, lead, and calin, a species of tin which is highly valued throughout Asia.

MALACCA is a peninsula situated between the streight of that name, and the gulph of Siam. It is said, by some travellers, to be divided into seven kingdoms, every one of which may be about ten leagues in breadth, and thirty in length. It is supposed to be the golden Chersonesus of the ancients; but as it is only rich in consequence of its commerce with the Chinese, this must certainly be an error: though we are told by the Jesuit missionaries, that the inhabitants reckon their riches by bars of gold, and that every bar contains four quintals,

CAMBODIA is about 528 English miles in length, and about 398 in breadth. A large and spacious river runs through the centre of it, the banks of which only are habitable, on account of its sultry air, and the pestiferous gnats, serpents, and other animals, bred in the woods, so that it is but thinly peopled.

COCHIN, or western China, is about 500 miles in length, but its breadth is much less. This kingdom is supposed to have been formerly a province of China, and is still subject to that empire. During the months of September, October, and November, the rivers of this country rise every fortnight, and overflow the lands for three days, which are so enriched by the flume, that the inhabitants can sow and reap twice in a year. The soil produces rice, several sorts of fruits and herbs, pepper, cinnamon, gum benjamin, eagle and kalembac wood; gold, silver, silk, cotton, and porcelain, are also among the exports of this country. The elephants here are of an amazing size, and surprizing docility.

TONQUIN is supposed to be about 370 miles in length, and 240 where broadest. The climate is so exceedingly mild and temperate, that the whole year appears like a continual spring, without any other material change than that of rain and sun-

shine, wet and dry. The productions of this kingdom are in general much the same with those of China and other parts of India, but their fruit is said to exceed that of all Asia for the delicacy of its flavour.

INDIA *within the GANGES.*

This empire is situated between 7 and 40 degrees of north latitude, and between 66 and 92 degrees of east longitude. It is about two thousand miles in length, and fifteen hundred in breadth; bounded by Usbec Tartary and Tibet on the north; by Tibet and the bay of Bengal on the east; by the Indian ocean on the south; and by the same ocean and Persia, on the west; the main land being the Mogul empire, properly called Indostan.

GUZERAT is a maritime province, on the gulph of Cambaya, but was formerly one of the pleasantest, though not one of the largest kingdoms, in all Indostan; and is still very fruitful in corn, rice, &c. The natives are a most abandoned race, who subsist chiefly by robbery and piracy, plundering such as are weaker than themselves, both by sea and land; nor is it in the power of the Great Mogul to put a stop to their proceedings, their country being fortified by nature so as to render it inaccessible, otherwise than by little boats, which would be of no service in landing an army. This province contains about thirty-five cities, among which are its capital Ahmedabad, and Surat.

AGRA, an inland province, and the largest in all Indostan, is said to contain forty cities, or large towns, and above 340 villages. It stands on the river Gemna, and its capital, which is also called Agra, is the most considerable in the whole empire. The castle, which is very large, contains a superb palace belonging to the Emperor; and a long line of palaces, appertaining to the great lords of the court, are built on the banks of the river. There are also thirteen large squares, and a prodigious number of spacious caravanseras, public baths, magnificent mosques, sepulchres, and gardens. The Dutch have established a factory here, but the English have none. The other towns of any note in this empire are Fetipur, Biana, and Scanderabad.

To the north of Agra lies the province of DEHLI, the capital of which bears the same name. This city is the usual residence of the Great Mogul, and supposed to be about nine miles in circuit. The fortress, which contains the Emperor's palace, gardens, &c. is a mile and a half in circuit; by the invasion of Kouli Kan, the whole city was ruined, and now scarce exhibits the shadow of its former greatness.

The province of **AZMIR**, which lies south-west of Dehli, and west of Agra, is divided into three lesser provinces or districts, called Bando, Jefelmir, and Soret. The capital city is Azmir, which is tolerably large, and carries on a great trade in salt-petre. Pilgrims from all parts of India resort to this city, in order to pay their devotions at the tomb of Khoja Mondi, a Mahometan saint.

The province of **SIND**, or **SINDI**, is sometimes called Tatta, from the name of its capital, which is a very large, rich city, and carries on a prodigious traffick. The citadel is spacious enough to contain 15000 men, and there is convenient stabling for as many horses. The inhabitants are prodigiously ingenious in all kinds of arts; and the palaquins made here are esteemed the finest in all India. The word palaquin signifies a little bed, covered with a bending canopy, and the traveller being placed therein, is carried by four men, who will trot along, morning and evening, forty miles in a day. The usual method is to hire ten of these men, and they relieve each other often during a journey. In this city are upwards of four hundred Mahometan colleges for the instruction of their youth.

The province of **MULTAN** includes that of Bukor. The capital, also called Multan, is not very large, nor does it carry on any considerable trade, but is famous for the excellent bows made there, and its nimble dancers.

The province of **KABUL**, or Kabulestan, is remarkable only for its productions of drugs, canes, and iron. In the two last articles a considerable trade is carried on with the Persians and Tartars, who barter their horses for them. This province, besides Kabul, its capital, which is very large, contains a number of small cities, towns, and villages.

The province of **CASSIMERE** is entirely surrounded by mountains, excepting two or three narrow passages, which conduct the traveller into its delightful plains. It is said to contain an hundred thousand villages; and the capital, which is called by some, Cassimere, and by others, Sirenaker, is a very large city. It is situated near a fine lake, and so delightfully diversified with canals and gardens, that the Moguls give it the appellation of the Paradise of the Indies. The inhabitants, particularly the women, are as fair as the Europeans. They are celebrated for their wit and dexterity, and are exceeding ingenious in making curious toys, which they sell in every part of the Indies. They likewise carry on a curious manufacture of shawls, which are made either of the wool of the country, being finer than that of Spain, or of hair, finer than beaver,
taken

taken from a wild goat, in Great Tibet. They are very light and warm; for which reason the Indians wear them round their heads in the winter.

LAHUR is one of the largest and most fruitful provinces in the Indies, being well watered, and abounding in rice, corn, fruits, good wine, and the best sugars in all Indostan. The capital, also called Lahur, was once no less than three leagues in length, but is now greatly decayed. The inhabitants carry on several manufactures, and all those of India flourish in the different towns of this province.

Nothing interesting can be observed with respect to the provinces of Ayud, Varad, Bekar, and Hallabas, as they are very little known to us.

The province of BENGAL, called by the natives Jaganat, is said to be more fertile than Egypt: it produces corn, rice, sesamum, sugar-canes, small mulberry, and other trees. It also abounds in calicoes, silks, salt-petre, lacca, opium, wax, and civet; and provisions of every kind are exceedingly plentiful and cheap; but with all these advantages, the air is very unwholesome, especially to strangers. This province, which extends near an hundred miles on both sides the Ganges, is full of cities, towns, villages, and castles, and the whole country is intersected by canals, cut out of that river, for the benefit of commerce.

The natives profess the Gentoo religion, and the shore on each side the Ganges is adorned with magnificent pagodas. Here the English, Dutch, and French, have factories, and here the principal commerce with the Indians is carried on.

To the west of Bengal lies the province of MALVA, of which nothing certain is known, except that it is as fertile as those already mentioned, and that the chief city is called Ratipor, being a place of great traffick.

The province of KANDISH includes that of Berar, and part of Orixá. It is consequently of vast extent, and contains a prodigious number of populous towns and villages, wherein all sorts of cotton manufactures are carried on.

The kingdom of GOLCONDA is famous for its diamond mines, of which it contains such numbers, that many of them are not worked, lest these valuable gems should become too common. The kingdom of Visipor likewise contains innumerable quantities of them, as do many other places in this part of India; but

but the two above-men tioned kingdoms are able to supply all the world with them.

INDIAN ISLANDS.

JAPAN. The several islands, which form the empire of that name, are situated about an hundred leagues east of China, and extend from the thirtieth to the forty first degree of north latitude; and from the hundred and thirtieth to the hundred and forty-seventh of east longitude. The inhabitants call this empire Nippon, the name of the chief island; and the Chinese term it Siphon. Japan was first discovered by the Portuguese. between the years 1535, and 1548.

The soil, and likewise the animal and vegetable productions of Japan, are much the same with those of China. The mountains, woods, and forests, are well stocked with horses, sheep, oxen, hogs, elephants, buffaloes, deer, &c. the rivers with fish; and the earth yields Indian and other corn, fine rice, millet, and various other grain, besides several kinds of fruits.

The **LADRONE**, or **MARIAN** islands, are about twelve in number, and situated in the Pacific Ocean, between 12 degrees of north latitude, and 140 degrees of east longitude. The largest of the Marian Islands is Guam, which is 40 miles long and 12 broad. The Spaniards have a fort and a small garrison of thirty or forty men on this island, and most of their galleons touch here, in their voyage from Acapulco in America, to Manilla. It was at Tinian, one of the Ladrone, a small but beautifully romantic island, that Lord Anson stopped in his passage across the Pacific Ocean. It was then uninhabited, but abounded in cattle, fruits, and other necessaries. All these islands yield a particular kind of fruit called by the Indians Rima, but by the English Bread-fruit. It grows upon a pretty lofty tree, which towards the top divides into large and spreading branches; the leaves are of a remarkable deep green, notched about the edges, and about sixteen inches in length; the fruit grows indifferently on all parts of the branches; its shape is rather elliptical than round, about seven or eight inches long, and covered with a rough rind.

PHILLIPPINE islands are said to be eleven hundred in number; but the principal are Luconia or Manilla, Somar, Mindora, Luban, and Mindanao. They are situated in the Pacific Ocean, about 300 miles south-east from China, between 5 and 19 degrees of north latitude, and 114 and 130 degrees of east longitude.

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They were discovered in the year 1521 by Francis Magellan but no attempt made either to subdue or settle them till the year 1564, in the reign of Philip II. when Lopez Delagaspes conquered and planted colonies in them, and gave them the name of Philippines, in honour of the prince who then filled the Spanish throne. The inhabitants consist of Chinese, Ethiopians, Malays, Spaniards, Portuguese, Pintados, or painted people, and Mestis, a mixture of all these. No part of the world produces greater plenty of all the necessaries of life than these islands; nor can any country afford a more beautiful prospect, the trees being clothed with a perpetual verdure, and buds, blossoms, and fruits, succeed each other during the whole year. Considerable quantities of gold are washed down from the hills by the rains, and found mixed with the sand in the rivers. The plains are full of buffaloes, horses, oxen, and goats; and the woods abound with deer, wild hogs, and monkeys. Among a great variety of birds, is that called the saligan, whose nest affords that dissolving jelly, so much valued by the voluptuous of Europe. The soil is so luxurious, that if a sprig of orange or lemon tree be planted, it becomes in one year a fruit-bearing tree. The Spaniards have introduced here several of the European and American fruit-trees, which flourish as well as in their native soil. The cacao or chocolate-nut-tree is now so common in these islands, that they have no longer any occasion to import that commodity from Mexico. The tree Amet supplies the natives with water; and there is also a kind of cane called vaxuco by the Spaniards, which, if cut, yields fair water sufficient for a draught, and there is plenty of them in the mountains, where water is most wanted.

MOLUCCAS, or CLOVER islands. These islands lie in a cluster, and within sight of one another, not being more than 25 leagues south of the Philippines, between 1 degree south and 2 degrees north latitude, and in 125 degrees of east longitude. They are five in number, viz. Bachiam, Machiam, Motyr, Ternate, and Tydore. None of these islands produce either corn or rice, so that sago is the principal food of the inhabitants. Their chief produce, besides the tropical fruits, consists in cloves, mace, and nutmegs, which are here in prodigious plenty. These spices are monopolized by the Dutch, with so much jealousy, that they annually destroy great numbers of the trees, lest the inhabitants should dispose of the super-numerary spices to other nations. They were discovered in the year 1511, by Francis Magellan; and, after being subject to several powers, are now governed by three princes subordinate

to the Dutch. Ternate, the largest of these islands, is not above thirty miles in circumference.

AMBOYNA is one of the Moluccas, taken in the largest sense of the word: it is the most considerable, and in fact commands all the Moluccas. It is about 70 miles in circumference, and defended by a Dutch garrison of seven or 800 men, besides several forts, for the protection of their clove plantations.

BANDA or NUTMEG islands. These islands are six in number, and lie between four and five degrees of south latitude, and in 138 degrees of east longitude. Their names are Lonthor, Poulelon, Rosingen, Pooloway, and Gonapi. The largest of them is not above twenty miles in circumference; though they are of the utmost consequence to the Dutch, on account of the nutmegs and mace, which grow here in such amazing quantities, that they are enabled to supply all the markets of Europe.

CELEBES, or MACASSAR. This island is situated under the equator, between the islands of Borneo and the Spice Islands, about 160 leagues from Batavia. It is about 500 miles in length, and 200 in breadth, and is, with very great reason, considered as the key of the Spice Islands. Its chief products are, is cotton, opium, and pepper.

The SUNDA ISLANDS are, Borneo, Sumatra, Java, Bally, Lamboe, and Banca.

BORNEO produces rice, cotton, canes, camphire, gold, and diamonds.

SUMATRA is fertile, and produces the fruits common to the torrid zone, and the finest camphire in the world.

JAVA, whose capital is Batavia, produces pepper, indigo, sugar, cardamoms, &c. and is supposed to contain near thirty millions of inhabitants.

ADAMAN or NICHOBAR islands are situated near the coast of Malacca, and furnish the ships with fruit and other refreshments.

CEYLON. This island, which is called by the inhabitants Lamea, the terrestrial paradise, though not the largest, is generally allowed to be the richest and finest in Asia. It is situated in the Indian Ocean, near Cape Comorin, from which it is separated by a very narrow streight. It is about 250 miles in length and 200 in breadth. Besides the common tropical fruits,

which are found here in great abundance, the island produces long pepper, fine cotton, ivory, silk, tobacco, ebony, musk, crystal, salt-petre, sulphur, lead, iron, steel, cinnamon, gold, silver, and all kinds of precious stones, except diamonds. Fowls and fish, of almost every kind, are here in great plenty. It is well watered with rivers, and has many beautiful woods and groves. Animals of various kinds abound here, especially cows, buffaloes, goats, hogs, deer, hares, dogs, and other quadrupeds. The elephants of Ceylon are preferred to all others; but what has rendered this island remarkable is its cinnamon, which is the best in the world, and produced in amazing quantities. The trees grow in great profusion in every part of the island; but the best is found in what is called the cinnamon field, a large tract of land, comprehending the whole west and southern coasts of the island.

MALDIVA ISLANDS. Few Europeans, except the Dutch, visit these islands, where they carry on a very profitable trade, in a beautiful species of shells called Conries, which were formerly used as money by the negroes on the coast of Guinea in Africa. Among other vegetable productions in these islands, is a particular species of cocoa tree, whose fruit is an excellent medicine in fevers; this tree grows to a large size. A writer of great credit and veracity declares, that the Maldivians, have vessels of twenty or thirty tons burden, whose hulls, masts, sails, rigging, anchors and cables, are all made from this tree. It also affords them oil for their lamps, fuel to dress their food, sugar, candied sweetmeats, and a pretty strong kind of cloth.

Besides the islands we have described, there are a great many small ones scattered in the Indian and Chinese oceans, but their produce is nearly the same with those particularly mentioned. In the northern parts are also several islands, particularly Kam-schatka, and the Kurile islands, lately discovered by the Russians; they are as yet but very little known, and their produce of small value.

[To be continued.]

ART. II. *Thoughts on the Rot in Sheep.*

[In a Letter to the Secretary of the Bath Society.]

THE great attention of the Bath Agriculture Society to such subjects as promote the public good, induces me to trouble you with a few loose thoughts relative to a disorder most fatal in an animal of vast importance to the "agriculture, manufactures, and commerce of this kingdom."

The cause of the rot in sheep, says Mr. Boswell, in his late useful and ingenious publication,* is unknown.—Mr. Arthur Young, in recapitulating all the information he could get, in his eastern tour, observes that "the accounts are so amazingly contradictory, that nothing can be gathered from them," but concludes, that "every one knows that moisture is the cause."

In differing from an author of Mr. Young's acknowledged merit, supported by the general opinion of mankind, I am led to examine my own sentiments with caution and distrust;—but unless it is only meant, that moisture is generally the remote cause, it will be difficult to account for the rot being taken on fallows in a single day, and in water meadows sometimes in half an hour, when in grounds of a different sort, although excessively wet and slabby, sheep will remain for many weeks together uninjured.

Another opinion, which has many adherents, is, that the rot is owing to the quick growth of grass or herbs that grow in wet places.

Without premising, that all-bounteous Providence has given to every animal its peculiar taste, by which it distinguishes the food proper for its preservation and support, (if not vitiated by fortuitous circumstances,) it seems very difficult to discover on philosophical principles, why the quick growth of grass should render it noxious,—or why any herb should at one season produce fatal effects, by the admission of pure water only into its component parts, which at other times is perfectly innocent, although brought to its utmost strength and maturity by the genial influence of the sun. So far from agreeing with those who attribute the rot to quick-growing grass, which they call slabby, insipid, and destitute of salts, to me the quickness of growth is a proof of its being endued with the most active principles of vegetation, and is one of the criterions of its superior excellence.—Besides, the constant practice of most farmers in the kingdom, who, with the greatest security, feed their meadows in the spring, when the grass shoots quick and is full of

ill, it argues directly against this opinion.

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* On Watering Meadows.

Let us now consider whether another cause may not be assigned, and reconciled to the various accounts we receive of this disorder. If our arguments, however specious, are contradictory to known facts, instead of conducting us in the plain paths of truth, they leave us in the mazes of error and uncertainty.

The whole vegetable and animal creation have their peculiar soils, situations, and food, assigned them. Taught by unerring instinct, "the sparrow findeth her a house, the swallow a nest," and the stork in the heavens knoweth her appointed time." The whole feathered tribe, indeed, display a wonderful sagacity and variety in the choice and structure of their habitations. Nor can it be doubted that the minutest reptile has its fixed laws, appointed by him whose "tender mercies are over all his works."

The numerous inhabitants of the air, earth, and waters, are strongly influenced by the seasons, and by the state of the atmosphere; and the same causes, perhaps, that rapidly call myriads of one species into being, may frequently prove the destruction of another. Is it then improbable that some insect finds its food, and lays its eggs, on the tender succulent grass found on particular soils, (especially wet ones) which it most delights in? Or, that this insect should, after a redundancy of moisture, by an instinctive impulse, quit its dank and dreary habitation, and its fecundity be greatly increased by such seasons, in conjunction with the prolific warmth of the sun?

The flesh-fly, lays her eggs upon her food, which also serves to support her future offspring; and the common earth-worm propagates its species above ground, when the weather is mild and moist, on the earth dewy.

The eggs, deposited on the tender germ, are conveyed with the food into the stomach and intestines of the animals, whence they are received into the lacteal vessels, carried off in the chyle, and pass into the blood; nor do they meet with any obstruction until they arrive at the capillary vessels of the liver.—Here, as blood filtrates through the extreme branches, answering to those of the Vena Portæ in the human body, the discerning vessels are too minute to admit the impregnated ova, which, adhering to the membrane, produce those animalculæ that feed upon the liver and destroy the sheep. They much resemble the flat fish called plaice, are sometimes as large as a silver two-pence, and are found both in the liver and in the pipe, (answering to that of the vena cava) which conveys the blood from the liver to the heart,

If the form of this animal is unlike any thing we meet with among the insect tribe, we should consider that it may be so small in its natural state as to escape our observation.—Or might not its form have changed with its situation?—"The caterpillar undergoes several changes before it produces a butterfly."

The various accounts which every diligent enquirer must have met with, (as well as the indefatigable Mr. Young) seem very consistent with the theory of this disorder.

If dry, limed land in Derbyshire will rot in common with water-meadows, and stagnant marshes;—if some springy lands rot when others are perfectly safe;—is it owing to the circumstance of water, or to that of producing the proper food or nest of the insect? Those who find their aftergrasses rot till the autumnal watering, and safe afterwards, might probably be of opinion, that the embryo laid there in the summer, is then washed away or destroyed.

With regard to those lands that are accounted never safe,—if there is not something peculiar in the soil or situation, which allures or forces the insect to quit its abode at uncommon seasons, it may be well worth enquiring, whether from the coarseness of their nature, or for want of being sufficiently fed, there is not some grass in these lands always left of a sufficient length to secure the eggs of the insect above the reach of the water.

Such who assert that flowing water alone is the cause of the rot can have but little acquaintance with the Somersetshire clays, and are diametrically opposite to those who find their worst land for rotting cured by watering. Yet, may not the water which produces this effect be impregnated with particles destructive to the insect, or to the tender germ which serves for its food or nidus?

For solving another difficulty, that "no ewe ever rots while she has a lamb by her side," the gentlemen of the faculty can best inform us, whether it is not probable, that the impregnated ovum passes into the milk, and never arrives at the liver. The same learned gentlemen may think the following question also not unworthy their consideration:

Why is the rot fatal to sheep, hares, and rabbits, (and sometimes to calves,) when cattle of greater bulk, which probably take the same food, escape uninjured?

Is the digestive matter in the stomach of these different from that of the others, and such as will turn the ova into a state of corruption; or rather, are not the secretory ducts in the liver large enough to let them pass through, and be carried on in the current of the blood?

It seems to be an acknowledged fact, that salt-marshes never rot. Salt is pernicious to most insects. They never infest gardens where sea-weed is laid. Common salt and water is a powerful expellent of worms bred in the human body.

I could wish the intelligent farmer would consider these truths with attention, and not neglect a remedy which is cheap and always at hand.

LISLE, in his book of husbandry, informs us of a farmer who cured his whole flock of the rot, by giving each sheep a handful of Spanish salt, for five or six mornings successively. The hint was probably taken from the Spaniards, who frequently give their sheep salt to keep them healthy.

On some farms, perhaps the utmost caution cannot always prevent the disorder. In wet and warm seasons, the prudent farmer will remove his sheep from the lands liable to rot. Those who have it not in their power to do this, I would advise to give each sheep a spoonful of common salt, with the same quantity of flour, in a quarter of a pint of water, once or twice a week. When the rot is recently taken, the same remedy given four or five mornings successively, will in all probability effect a cure. The addition of the flour and water will, in the opinion of the writer of this, not only abate the pungency of the salt, but dispose it to mix with the chyle in a more friendly and efficacious manner.

Were it in my power to communicate to the Society the result of actual experiment, it would doubtless be more satisfactory. They will however, I am persuaded, accept of these hints, at least as an earnest of my desire to be serviceable. Should they only tend to awaken the attention of the industrious husbandman, or to excite the curiosity of some other enquirer, who has more leisure and greater abilities, I shall have the satisfaction of thinking that my speculations, however imperfect, are not entirely useless.

I am, &c.

Salisbury, Dec. 3, 1779.

B. PRICE.

ART. III. On LUCERNE.

ALTHOUGH lucerne is not a grass to be ventured on a large scale, yet I think for a small spot of ground, where a cow is kept for the service of a family, when grass or meadow land is scarce and dear, the cultivation of lucerne will be advantageous, as it is a lasting plant, & will bear continual cutting when once it flourishes; to obtain which much care is necessary at the beginning, whether sown in drill or broadcast; though I should

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prefer the former on many accounts, such as being able to hoe the interstices, and clean it from weeds more effectually.

The choice of land is not always to be made, but when there is earth deep enough and not too wet, little fear is to be made of its growth. The proper time of sowing is April, from the beginning to the latter end, and according to the season.

The quantity of seed to be allowed to an acre, is a thing to be determined by experience; but the way of sowing it by the broad-cast, which has been the custom in most parts of England where this plant has been tried, is by no means proper on any account; and a vastly laiger quantity of seed than needful has always been allowed. The method we propose by the drill, will easily determine the needful quantity of the seed. The plants should stand at about seven inches distance in rows, and these rows should be a yard distant from one another. It will be possible to work the horse-hoe in these, and the plants will be perfectly well supplied with nourishment. The farmer need not be afraid of having by this method a sufficient quantity of plants upon the ground; for each of these, if rightly managed, will, when grown to perfection, have from a hundred to more than two hundred stalks.

When the lucerne is sowed thin in drills at a yard distance, in the middle of April, upon a proper soil well broke for that purpose, the moisture and warmth of the season will soon bring it up. As soon as it has got a little height, the Farmer is to send in some hand-hoers, with instructions how to work. They are to hoe up the young growth of weeds that have risen about the rows on each side, and to thin the plants where they have come up too thick, leaving the most promising at the rate of about four in every two foot. They are not to thin these to exactly six inches distance each, but to preserve the best plants in about that number. These hand-hoers are not to meddle with the middle of the intervals, but only to destroy the weeds and break the surface of the ground just about the rows.

This done, the plants are to be left to themselves till they are of some stature, and the intervals are over-run with weeds. Then the hoe-plough is to be sent in, and a tolerably deep furrow is to be turned in the centre of each interval.

This is to be repeated as often as the weeds appear, only leaving here and there an interval free and unploughed for the convenience of making the hay.

The intervals that are left at one time may be ploughed up at another; but in that case there must be a number made smooth by rolling at proper distances.

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By this management lucerne will thrive very well till grass gins to grow among it, which it is always apt to do, and always as we have seen to the destruction of the crop.

In this case there must be a good furrow ploughed from each side of every row, and afterwards there must be harrows brought into the ground, and drawn crosswise; these, without injuring the crop, will tear away the grass which the plough raised, and such as grows among the plants; after this, the two furrows first ploughed up, beside each row, are to be turned in upon them: and there will be the double advantage of clearing away the grass, and giving the roots of the crop a fine quantity of fresh earth for their nourishment,

The grass that was left upon the ground, and half killed by the sun, will be thus buried and thoroughly destroyed; and after this it will not be able to make any head again for a great while.

As to the thinning of plants in the rows by the hand-hoe, it must not be done till they have got some strength, for fear of accidents. The sweetness of the lucerne leaf, when very young makes it liable to the same damage by the fly as turnips, therefore it is proper to see that danger over before it is thinned; for when the plants have got some strength, this insect never attempts them.

As to the horse-hoeing afterwards, it is to be repeated oftener than to any other species whatsoever, for this plain reason, that it is to forward so great a number of crops. Those who have hitherto raised lucerne in England, following the common method of husbandry, have contented themselves with two crops a year: but we see what it yields in other countries, and by the same management we may bring it nearly, if not altogether, to the same richness here.

If the farmer should at any time have neglected his lucerne, so as that the natural grass should become a turf, and the plants appear, as in that case they certainly will, in a decayed state, the four-coulted plough is then the instrument for his purpose. With this he is to round every row, turning the furrows toward one row, and from the next, the first time: and the next, from the rows they were turned toward before, and to the others: thus taking care not to hurt the plants by letting the furrows lie too long upon them, the grass will be destroyed, and the plants will recover.

In this case there must be some intervals left as in the common course for the making of the hay; and by this practice there will be found no difficulty of making this most valuable plant succeed perfectly well in England, and afford its numerous crops as in other countries.

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The superiority lucerne has over all other of the artificial grasses, is in the frequency of its crop; this gives it a value to the farmer which none of the others have; and it is increased by its natural richness, and wholesome qualities.

The others are to be used partly by cutting, and giving them green in the racks, partly by drying into hay, and partly by feeding on the ground; lucerne would equally answer all these purposes; but it is better to spare the last, for the feet of large cattle would tread it down in such a manner, that the owner would lose much more in the succeeding crops than would equal the advantage of that feeding. In the other two methods it answers excellently, and a part of it may be given fresh cut and green all the summer, while the rest is making for the winter service, or for sale.

The best season for giving it first to cattle green, is in the spring, because its natural effect is purging first, and afterwards fattening them; but in this, as in clover, there is some danger of its making them swell at first, if given injudiciously: to prevent this accident, the farmer will remember what we have said of clover, and use the same precautions, giving them straw among it first, or beginning by a little at a time.

In this way of giving it, it is safe for all cattle, and agrees with all; nothing strengthens or fattens a horse like it, and no food whatsoever (except saint-foin) makes cows yield so great a quantity of rich milk, or so little alters it in flavour.

The great danger of cattle hurting themselves by it, will be avoided by their not being turned into the fields, to eat at their own pleasure: this is always to be given them in racks, and therefore the owner may always proportion the quantity at his discretion.

In this manner of using, a field of lucerne will continue in heart many years; nay, there is no saying when it will be worn out.

The making it into hay is the next consideration, and is of the greatest consequence. The profit is vastly great, and therefore it is worth the farmer's while to be strict in observing all the particulars relating to it.

The principal are two, that it may be cut young, and that it may be well dried; as to the first it is prodigiously to his advantage in every respect, for the hay will be sweeter, and the next crop will come much sooner than if more time were lost, and the roots exhausted, as we have shewn they always are, when the plants have stood to flower some time.

The time to cut saint-foin is when in full flower; the time to cut clover is when beginning to get into flower; but the exact and proper time for cutting lucerne is when it is preparing to flower, but has none fully open.

The flowers of this plant stand in heads, in the same manner as those of clover, but the plant must be watched carefully for their appearance. When they have formed themselves is the time of cutting the crop; and in that case the roots being full of vigour, there will be a shoot of four or five inches high toward a new crop, while the hay is making.

ART. IV. *On GEESE, DUCKS, TURKEYS, &c.*

GEESE are very profitable to the farmer many ways, for their flesh, their feathers, and their grease. They will live upon commons or any sort of pastures, and need very little attendance; only they should have plenty of water. The largest geese are reckoned the best: but there is a sort of Spanish goose, that is a much better layer and breeder than the English, especially if the eggs are hatched under an English goose.

Geese lay in the spring, the earlier the better; because of their price, and their having a second brood. They commonly lay twelve or sixteen eggs a-piece. You may know when they will lay by their carrying straw in their mouth; and when they will sit, by their continuing on their nests after they have laid. A goose sits thirty days; but if the weather be fair and warm, they will hatch three or four days sooner. After the goslings are hatched, some keep them in the house ten or twelve days, and feed them with curds, barley-meal, bran, &c. and after they have acquired some strength let them out four or five hours a day, taking them in again till they are big enough to defend themselves from vermin. Others put them out at first, and perhaps succeed as well as the former. One gander will be sufficient for five geese.

If you would fat green geese, you must shut them up when they are about a month old, and they will be fat in about a month more. Be sure to let them have always by them, in a small rack, some fine hay, which will much hasten their fattening. But for fattening of older geese, it is commonly done when they are about six months old, in or soon after harvest, when they have been in stubble fields, from which food some kill them, which is a good way. But those who are desirous of having them very fat, shut them up a fortnight or three weeks, and feed them with oats, split-beans, barley-meal, or ground malt, mixed with milk; but the best thing to fatten them with is malt mixed with beer. You must, however, observe in fattening all sorts of water-fowl, that they usually sit with their

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bills upon their rumps, where they suck out the greater part of their moisture and fatness, at a small bunch of feathers, which you will find standing upright on their rumps, and always moist, with which they trim their feathers, which renders them more oily and slippery than the feathers of other fowls, and causes the water to slip off them. If therefore these upright feathers are cut away close, they will become fat in less time, and with less meat than otherwise. Geese will likewise feed on, and fatten well with carrots cut small and given them; or if you give them rye before, or about midsummer, it will strengthen them, and keep them in health, that being commonly their sickly time.

In some countries they shear their geese for feathers, and some pull them twice a year; but the latter is more injurious to them, and therefore it is better staying till their moulting time, and till their death, for the feathers.

DUCKS require no charge in keeping; for they live on lost corn, snails, &c. for which reason they are very proper for gardens. Once in the year they lay a large quantity of eggs, especially a sort of duck which turns up its bill more than the common kind. When they sit they require no attendance except the having a little barley or offal corn, near them, that they may not straggle far from their nests to chill their eggs. They are reckoned to be better hatched under a hen than a duck; because while they are young the hen will not so often lead them into the water. Some reckon it very proper to cut off the feathers from their rumps; because when their tails are wet, it often occasions their drowning. As to the fattening of them, you may do it in three weeks time, by giving them any kind of corn or grain, and plenty of water. Ground malt, wet either with milk or water, is best.

TURKEYS. This kind of bird always succeeds best for the owner in open countries, because these are not so much infested with vermin; and they are subject to ramble and be destroyed more than any other kind of fowl. This may be a very reasonable caution for the husbandman not to keep them in improper places; but we have counties enough in England that are not at all liable to that objection.

There are several smaller differences among turkies, respecting colour and other accidents; and there are distinctions of more consequence, as they depend upon real differences in the kind. Among the common breed of turkies there are two sorts distinguished by their colours, a whitish or grey, and a darker. These differ in many respects, but the principal is this: that the

white kind breed excellently, but they are tender; and the others require less care, but they do not raise so many young.

It is remarkable in all the turkey kind, that they take very little care of their brood; but these least of all. If a common turkey, of the white kind, have a large number, she will never miss half of them, so the rest keep about her; but among the black kinds, if a single young one follow the hen, she never thinks of the rest, if they be all lost; and even this straggler she will drop with very little regard or notice.

The farmer is therefore here directed in part in his choice; if he intend to bestow a great deal of care upon his turkey, the white kind are to be preferred, for they breed the best; but if he cannot bestow so much time upon them, let him chuse the black. All that is necessary about these is to see that they are not deserted while they follow the dam, for after this they will take care of themselves.

There are turkeys much more different from these than they are from one another; of these the wild turkey of Virginia is the most valuable; this is large and dark coloured. There is also a smaller wild kind, of a dark colour, much hardier. Either of these may be raised by the farmer, or he may mix the breed by coupling one of our common turkey cocks with a hen of one or other of these kinds. The English and Virginian turkey make a very good breed, as has been found long since by experience. The young from this mixture are hardy, and will soon take care of themselves; and they are larger, and every way better, than the common breed; they will raise their young ones with care in the fields, and bring them in at an age when they can shift for themselves.

Whatever breed of turkeys the farmer shall, according to the several circumstances of his situation, prefer, let him take care to chuse for that purpose such as are good of the kind, and particularly the cock; he must be a tall, stout, lusty, and spirited bird. The turkey is naturally stately and majestic; and the cock that is chosen for the breed ought to be so particularly; for if he hang down his head and look peaking, he will never be good for any thing as a father for the brood. The hen should be large and vigorous; and it is a general and true observation, that such as are tamest are the best for the care of their young.

The first article to be considered in respect of the breeding of turkeys is the age of the cock and hen. The cock must be young, for the brood is never good unless he be in the vigour of his life: the hen may be older, for her care in sitting and leading them is all that is required of her, and in the latter article the cock often assists her, when he is of a kindly sort.

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The turkey-cock for breeding should be about two years old; and the best time for the hen is at about four years; she may be employed in breeding till she is six; but when she is too young, she is most apt to neglect the brood; and when the cock is at all declined from his strength, they are weakly.

Turkeys are not natural to our kingdom, and there is therefore always a wildness about them. The female of this kind does not lay familiarly and conveniently about houses as the common hen, but rambles to a distance, and makes her nest among thickets: for this reason her brood is from the beginning more liable to accidents. The farmer must therefore be watchful about the time of her laying, and take care to get her into the hen-house, and compel her to lay there: for this is the first precaution, and it is a very essential one about the brood.

It is a custom with some, if there be convenience of thickets or a little wood near the house, to let them take their own way, and lay and sit there; and in the hardier breeds, with a little care of the young when new hatched, this will do very well; but there is never any harm in the other method, whatever be the breed; and there is a much greater certainty of success.

The turkey naturally begins to lay in the month of March, and will sit in April; the eggs are very large, and are excellent as food, particularly they have a restorative virtue. The proper number of eggs to let the hen sit upon is eleven, some advise thirteen, but there is commonly less success in that avaritious method, for they cannot be all covered.

It may be observed, that in talking of the quantity of eggs to put under a hen fowl of any kind for setting, we generally speak in odd numbers, as eleven or thirteen, not naming ten, twelve, or fourteen. The good housewives have been taught, from generation to generation, to put always an odd number; and though they know nothing of the reason, they practise it superstitiously: the occasion is, that an odd number will lie better, and in a more compact heap, when we come to such quantities as are usually set, than an even.

The turkey sets about seven or eight and twenty days. Some of the eggs will sometimes be hatched a day or two sooner or later. The hatching of the brood is the time when the great care is required in their management. The turkey being naturally a bird of a warmer climate, is chill in this; and particularly the tender young. They must be kept very carefully at first, especially such as happen to hatch before others of the same brood: the best way is to put them into a basket with wool in it, and set them before the fire, at such a distance as to be gently warmed. From this time some person must act

as

as their nurse, for the hen is not to be expected to do much; they will follow her, and should be permitted to do so in the warm part of the day, and she should be managed to take care of them. The cock also will often watch over them, keep them together, and defend them better than the hen; but neither are to be trusted without careful looking after.

The proper method of managing them is this: they are to be kept in a warm and close place altogether while they are very young; and when they have got some strength, they are to be let out two hours after the sun is up in the morning, and taken in again before sun-set; and in this time they should be confined to some inclosure so secure that they cannot stray.

At first they are to be fed in the house, and afterwards in this open place: and at all times they must be allowed a sufficient supply of food, for their parents take but little care to help them to any. The very best food for them is green fresh cheese; and while they are young, their drink should be only new milk; afterwards milk and water, making it weaker and weaker till they come to water alone, which they will then drink wherever they can find it. Curds are a very good food for them, but not so well as cheese; a very wholesome food also is a kind of thick hasty pudding made of oatmeal, water, and a little new milk among it.

As the tenderness of the young is one great article in the disadvantage of the turkey, indeed the greatest, care must be taken that the hen do not set herself at too early a season. If the young are hatched in cold weather, it is scarce possible to rear them without considerable loss;* but if they be produced toward the latter end of May, which indeed is the most natural time, as well as the best, they will have a much better chance.

It is only while young that this bird is so exceedingly tender, for when grown up, it will bear the coldest of our weather very well. Grown turkeys will stand our severest winter nights ex-

* "Most of our housewives, says a Swedish author on husbandry, have long despaired of success in rearing turkeys, and complained that the profit rarely indemnifies them for their trouble and loss of time: whereas, continues he, little more is to be done than to plunge the chick into a vessel of cold water, the very hour, or if that cannot be, the day it is hatched, forcing it to swallow one whole pepper-corn, and then restoring it to its mother. From that time it will become hardy, and fear the cold no more than a hen's chick. After which it must be remembered that these useful creatures are subject to one particular malady whilst they are young, which carries them off in a few days. When they begin to droop, examine carefully the feathers on their rump, and you will find two or three, whose quill part is filled with blood; upon drawing these, the chick recovers, and after that requires no other care than what is commonly bestowed on poultry that range the court-yard. These articles are too true to be denied; and in proof of the success, three parishes in Sweden have for many years gained several hundred pounds by rearing and selling turkeys."

posed, better than our common fowl. They are frequently subject to be lost while young, by straggling from the dam, and one another, in which case they become an easy prey to any kind of vermin; but it is only while they are young that they are liable to this; for when grown up they are not only strong enough to defend themselves; but they always love to keep in flocks together.

The Husbandman who keeps many turkeys, must take a great deal of care to keep them out of his garden, for no bird does so much mischief there: but their profit is very well worth the trouble they occasion in this and other articles.

When the young turkeys have by the means already directed been raised to some strength and bigness, they may be left to themselves. They had reason to complain of the expence of keeping these fowls, who feed them constantly with corn, from the time of their first eating dry meat to the fattening of them; for they are very great devourers: but we find by experience, there is no occasion to feed them at all, either with that or any thing else, till they are to be got ready for sale. They will at all other times take sufficient care of themselves, and keep in very good case with what they find under hedges and in the yard.

They are naturally in better case in winter than in summer; for they are an indolent bird, but the cold gets them a stomach: and this is the best time for fattening them for the market.

In order to do this they must be taken up and housed; but it is best not to keep them up entirely, for they will in that case lose their food, and come on poorly. They must therefore be let out the greatest part of the day, but it is best to keep them where they cannot run much about at these times. The food to begin fattening them with is good barley, boiled till it is soft: Oats will do; but the barley is found better. Let them have plenty of this for a fortnight, with some air and sunshine, but a great deal of rest. After this they are to be cramm'd every morning as capons are, with a paste made of barley-meal and new milk; this is to be made into long pellets, and wetted in warm milk to make it go down. They are to be well fed with this in the morning, and then suffered to go out, but they are to be kept as quiet as may be. They are not to be cramm'd any more each day, besides this morning feeding, but during their being out, corn is to be thrown to them at times: this will keep them eating, and keep them quiet; for having food thus before them, they need not ramble about to seek it; and thus they will in a little time fatten up in a very fine, and even a surprising manner.

This

This is their proper management from the egg to the preparing them for the market; in which it is plain, that all the disadvantages supposed to attend them, may very easily be obviated and prevented; and that all the care that is needful about them is, when they are very young, and when they are preparing for the market: at the first of these times the least cold kills them; and at the other, they will not fatten well unless carefully tended: all the rest of their lives they provide for themselves; and the price they bring, whether sold as poults, or when grown up and fatted, is so considerable, that it very well answers all the trouble.

ART. V. *The history of a fly called a BOTT.*

[From Mr. De REAUMUR.]

AMONGST the animals that are useful to mankind, the horse is certainly entitled to the first rank; and yet this animal, considerable as it is, and contrived by its figure and beautiful proportion to afford us pleasure, was not given to mankind alone;—there is a species of fly, whose right in this creature may be looked upon as still better founded than our own.

If the horse be useful to us, he is absolutely necessary to this fly—the same being that formed the horse, formed also this fly, which depends wholly on the horse for its preservation and continuance. The flies we are speaking of, like those of all other species, receive their first life and growth in the form of worms,—but these are worms that can be produced and nourished only in the intestines of a horse. It is there alone they can enjoy the proper temperature of heat, and receive the nourishment necessary for them.

Besides the long, and sometimes very long worms which have been observed in the bodies of horses, there have been also short ones.—

[By these are to be understood what we call Botts.]

All authors, both antient and modern, who have treated of the diseases of horses, have taken notice of these worms,—but M. Vallisnieri is, I believe, the first who has traced them to the last stage of their transformation, and has seen them change into a hairy kind of fly like the drone.

The flies from which these botts are produced inhabit the country, and do not come near houses, at least not those of great towns; and therefore horses are never liable to have these worms (i. e. botts) in their bodies, if they have been kept in the house, especially in a town, during the summer and autumn.

It

It is in the former of these seasons, and perhaps too in the beginning of the latter, that the females of these flies apply themselves to the anus of the horses, and endeavour to gain admittance, in order there to deposit their eggs, or perhaps their worms.

The precise instant of their entrance will scarce admit of an eye-witness, but by the meereft chance; yet M. Vallisnieri says, that Dr. Gaspari had attained this very uncommon sight. The doctor (he tells us) was one day looking at his mares in the field, and from being very quiet, he observed, that on a sudden they became very restless, and ran about in great agitation, prancing, plunging, and kicking, with violent motions of their tails. He concluded, that these extraordinary effects were produced by some fly buzzing about them, and endeavouring to settle upon the anus of one of them; but the fly not being able to succeed, he observed it to go off, with less noise than before, towards a mare that was feeding at a distance from the rest; and now the fly taking a more effectual method to obtain its design, passed under the tail of the mare, and so made its way to the anus.

Here at first it occasioned only an itching, by which the intestine was protruded with an increased aperture of the anus; the fly taking the advantage of this penetrated further, and secured itself in the fold of the intestine;—this effected, it was in a situation proper for laying its eggs. Soon after this the mare became very violent, running about, prancing, and kicking, and throwing herself on the ground; in short, was not quiet, nor returned to feeding, till after a quarter of an hour.

The fly then we see can find means of depositing its eggs, or perhaps its worms (i. e. botts) in the fundament of the horse, which, once effected, it has done all that is necessary for them.

If these bott worms are not hatched when first deposited in the horse, but are then only eggs, it will not be long before it happens, from the nutritive heat they there receive.

These bott worms soon make their way into the intestines of the horse; they occupy such parts of this region as are to them most convenient, and sometimes (as we shall see presently) they penetrate even to the stomach:—all the hazard they appear to be exposed to, is that of being carried away from the places they have fixed on by the excrement, which may seem likely to drive all before it. But nature has provided for all things; and when we shall have further described these bott worms, it will be seen that they are able to maintain their situation, and to remain in the body of the horse, as long as they please.

There is a time when these bott worms are of themselves desirous to leave their habitation, it being no longer convenient to them after the purposes of their growth are answered. Their transformation to a fly must be performed out of the horse's body, and accordingly, when the time of their transformation draws near, they approach towards the anus of the horse, and then leave him of their own accord, or with the excrement, with which they suffer themselves to be carried along.

The figure of these bott worms affords at first sight nothing remarkable, but they appear like many other worms of the first class, to which they belong, that change into flies of two wings, and like the greatest part of the worms of that class, they are provided with a sort of scaly claws, with which they draw themselves forward.

There is a difference in colour observable between those that are taken by force from the intestine of the horse, and those which come away of their own accord; some are greenish, some yellowish, and others nearly brown; these last are nearest to, and the greenish ones the farthest from the time of their transformation.

If M. Vallisnieri and myself have rightly observed the position of their claws, some of them differ from each other in this respect, but are perfectly similar in every other particular, and which change into flies so nearly alike, that I am convinced they are of the same kind and origin.

However this be, the bott worms, which are the subject of our present pursuit, have two unequal claws; and since I have been acquainted with the nature and use of them, I have had no difficulty to conceive how they may still remain in the intestines of the horse, in opposition to all efforts of the excrement to force them out—one of them, that I was handling and examining, fastened upon my finger in such a manner, that I found great difficulty to disengage myself. These claws are a sort of anchor, differently disposed from those of common anchors, but contrived to produce the same effect.

Besides these two claws, nature has given to each of these bott worms a very great number of triangular spines or bristles, very sufficient to arm them against the coats of the intestines, and to resist the force employed to drive them toward the anus, provided the head be direct towards the stomach of the horse.

It will be asked, no doubt, if these bott worms are not dangerous to horses;—the mares which afforded me, for several years, those on which I made my observations, did not appear to be less in health, than those which had none;—but it may sometimes

sometimes happen, that they are in so great a quantity in the body of the horse, as to prove fatal to him. M. Vallisnieri supposes these bott worms, to have been the cause of an epidemical disease, that destroyed a great many horses about Verona and Mantua in the year 1713—the observations communicated to him by Dr. Gaspari sufficiently confirm his supposition.

This gentleman, upon dissecting some horses that died of this distemper, found in their stomachs a surprising quantity of short worms, of which to give us some idea, he compares them to the kernels of a pomegranate opened—each of these, by gnawing on the coat of the stomach, had made for itself a kind of cellule therein, each of these cavities would easily contain a grain of Indian wheat.

It is easy to imagine by this means the stomach must be reduced to a wretched condition: the outer membranes were inflamed, and the inner ones ulcerated and corrupted; a very small quantity of these worms were found in the small intestines, and a few in the larger, to which last they were found affixed, but had not corroded them.

It is only perhaps when these bott worms are in great numbers, and thereby incommode each other in the intestines of the horse, that they make their way towards the stomach, and indeed a very few flies must be enough to overstock the inside of a horse, provided they should deposit all their eggs, and such should be animated, M. Vallisnieri having counted seven hundred and odd in the body of a single fly.

When one of these botts has left the anus of the horse, it falls on the ground, and immediately seeks out for some place of safety, where it may retire, to prepare for the last stage of its transformation, by which it is to become a fly.

And now by degrees the skin hardens and thickens, and at length forms a solid shell or cocoon, the form of which scarce differs from that of the worm. It is first of a pale red colour which changes into chestnut, and at length by the addition of gradual and successive shades of brown, the shell is rendered black.

The worm or bott before it passes into a nymph is of the form of an oblong ball; it remains in this form much longer than worms of the flesh-fly kind. I have met with worms, that retained this figure five or six days, as yet one can perceive no traces of the legs, wings, and head of the nymph.—Hence I first learned, that these bott worms do not become nymphs immediately upon their first change, but that, in order to become flies, they must undergo one change more than caterpillars ordinarily do to become butterflies.

ART. VI. *An excellent Receipt for a Mixture to cure a Cough in a Horse.*

INFUSE powder of elecampane, flour of brimstone, and Barbadoes tar, of each three quarters of an ounce; Venice treacle a quarter of an ounce; in a pint of stale beer. Give it him warm at night as a drench. Just before you give it, beat up the yolk of an egg with it. S. M.

ART. VII. *A Receipt to cure the Mange in Dogs.*

Mr. SYLVAN,

THE following recipe to cure the Mange in Dogs was communicated to me by one of the King's game-keepers, who assured me he never knew it fail. If you think it merits a place in the Farmer's Magazine, you are welcome to it.

I am, your's, &c.

Bath, Dec. 20, 1779.

S. MOREAU.

Receipt.—Shred some of the large red dock root, (having first peeled it clean) into as much water as will cover it; put it on a moderate fire till it boils; then on a slow one that it may only simmer, which it must do till you have got all the strength of the root out. Strain it off, and let it stand till cold, when it will be a jelly; which mix up with a sufficient quantity of hog's lard and flour of brimstone, to make it an ointment of a proper consistence: warm it a little, and anoint the dog with it at night; rub it well in, and repeat it the third day, and so on every other day if necessary, which it seldom is.

Washing dogs with train oil, or anointing them with Battel gunpowder and hog's-lard, have also been recommended to me as certain cures for the mange.

ART. VIII. *Receipt to cure a Consumption.*

Mr. SYLVAN,

THE following Diet, I was assured by a Waiter at Pond's coffee-house, perfectly recovered him from a decline:

"Boil rye meal in water to the thickness of hasty pudding; when cold, put one spoonful of it into a pint of new milk, and boil it up, stirring it all the time. Take it in the morning fasting."—He told me he lived upon this only till he recovered. S. M.

ART. IX.

ART. IX. *An excellent receipt in hard times, when bread corn was very dear, and flesh meat indifferent cheap, given to a poor weaver by an old Soldier, who by his pay did thus feed his wife and three children fat and fair.*

HE took two pounds of flesh meat (sometimes out of the tub, and sometimes of hung beef refreshed in water) cut into very small bits, and put into a pot with six quarts of water, letting it boil or stew till it was tender; then he put to it a quarter of a pound of carrots or parsnips, with a quarter of a pound of turnips, all sliced pretty small; sometimes instead of these a few potatoes also sliced; then about two ounces of onions or leeks; and other greens according to discretion, such as kale, cabbage, lettuce, celery, &c. the whole thickened with about a quart of oatmeal. Note, and kind of meal, knocked barley, collins, peas, or beans, will make a very good shift. These well boiled together, any seasoned with a little pepper or ginger, and salt, made an excellent well relished soup or hodge-podge, which served the whole family a day without bread or drink.

The expences of six quarts of this soup 7d.

ART. X. *Account of a remarkable large Ox, killed at Darlington in Yorkshire, from a letter dated Dec. 17.*

THIS day was killed here by Mr. George Coats, an eminent butcher, the most remarkable, large, and fat Ox, ever exhibited in this kingdom, rising six years old, bred and fed by Christopher Hill, esq; of Blackwell, near Darlington. His whole carcase is engaged to be cut up for the several gentlemen's families in the neighbourhood, at one shilling the pound.

DIMENSIONS.—Height, at the crop, six feet; at the shoulder, five feet nine inches and a quarter; at the loins, five feet eight inches; from the breast to the ground, two feet one inch.—Length, from horns to rump, nine feet five inches and a half.—Breadth, over the shoulders, between two perpendiculars, two feet ten inches and a quarter; from hip to hip, between two perpendiculars, two feet ten inches and a half.—Girt, before the shoulder, nine feet seven inches and a half; behind the shoulder, ten feet six inches; at the loins, nine feet six inches and three quarters; over the first rib, ten feet five inches.—Circumference, drawn with a cord from one ear, along his side, and round the hips, to the other ear, eighteen feet seven inches and an half,

WEIGHT.

WEIGHT.—The four quarters, one hundred and fifty-one stone ten pounds; the two fore-quarters, seventy-five stone seven pounds; the two hind-quarters, seventy-six stone three pounds.—N. B. 14lb. to the stone.—At the same place and time were killed, three remarkable wether sheep, bred and fed by Mr. William Charge, of Cleasby, near Darlington, which weighed forty-seven pounds a quarter.

ART. XI. List of the Fairs in England and Wales, in the Month of January.

1. **CHALBURY**, Wooburn. 10. Cawston, Dronfield. 14. Llanwenog. 17. Tavistock. 18. Banwell, Grampound. 22. Banham. 23. Shefford. 25. Bingley, Bodmyn, Chesterfield. Churchingford, Derby, Kington, (Warwickshire) Weasenham, Whittlesea in the Isle of Ely. 26. Adwalton.

Moveable Fairs in the Month of January.

Wednesday after the First, at Redbourn, Higham. Second Tuesday, at Howden. Tuesday after the 6th, at Salisbury. Wednesday after the 6th, at Landoverly. Saturday after the 6th, at Preston, (Lancashire) Monday se'nnight after the 6th, Plow Monday, at Buckingham and Sleaford. Friday after the 13th, at Nottingham. Tuesday after the 17th, at Melton Mowbray. Thursday after the 17th, at Banbury. Saturday after the 20th day after December the 25th, at Pontefract. Third Tuesday, O. S. at Potton. Third Tuesday, at Teignmouth. Wednesday after the 24th, at Knareborough. Thursday after the 24th, at Rippon. Last Friday, Llangellon. Thursday before the 25th, at Caerphilly.

End of the Fourth Volume.

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ERRATUM. P. 360. for *Clover* read *Clove* islands.



T H E
FARMER'S MAGAZINE.

JANUARY, 1780.

A DISSERTATION on the Progress and present State of
AGRICULTURE. [Continued.]

P E R S I A.

PERSIA is situated between the forty-fourth and seventieth degrees of east longitude, and between the twenty-fifth and forty-fourth of north latitude. It is about thirteen hundred miles in length, and eleven hundred in breadth. It is bounded by the mountains of Ararat, or Daghistan, which divide it from Circassian Tartary, on the north-west; by the Caspian sea, which divides it from Russia, on the north; by the river Oxus, which divides it from Usbec Tartary, on the north-east; by India on the east; by the Indian ocean, and the gulphs of Persia and Ormus, on the south; and by Arabia and Turkey on the west.

This vast country, so celebrated in antiquity, appeared to have been free at the first institution of its government. The monarchy rose upon the ruins of a depraved republic. The Persians were long happy under this form of government: their manners were as simple as their laws. At length the sovereigns were inspired with the spirit of conquest. At that time the treasures of Assyria, the spoils of many trading nations, and the tribute arising from a vast number of provinces, brought immense riches into the empire, which soon occasioned a total alteration. The disorders rose to such a pitch, that the care of the public amusements seemed to engage the chief attention of government.

A people totally devoted to pleasure could not fail in a short time to be reduced to slavery. They were successively brought

into that state by the Macedonians, the Parthians, the Arabians, and the Tartars; and towards the close of the fifteenth century by the Sophis, who pretended to be the descendents of Aly, author of the famous reformation, by which Mohammedism was divided into two branches.

No prince of this new race made himself so famous as Schah-Abbas, surnamed the great. He conquered Candahar, several places of importance upon the Black Sea, part of Arabia, and drove the Turks out of Georgia, Armenia, Mesopotamia, and all the countries they had conquered beyond the Euphrates.

These victories produced remarkable changes in the interior administration of the empire. The great men took advantage of the civil broils to make themselves independent; they were degraded, and all posts of consequence were given to strangers, who had neither the power nor inclination to raise factions. The army having taken upon themselves to dispose of the crown at their pleasure, they were restrained by foreign troops, whose religion and customs were different. Anarchy had inclined the people to sedition; and to prevent this, the towns and villages were filled with inhabitants chosen out of nations whose manners and character bore no resemblance to those of the ancient inhabitants. These arrangements gave rise to a despotism the most absolute, perhaps, that any country ever experienced.

The throne was continually filled with tyrannical or weak princes, whose cruelty and injustice weakened the correspondence of their subjects with other nations. One of these tyrants was so savage, that a great man of his court used to say, "that whenever he came out of the king's closet, he clapped both his hands to his head to feel whether it was still upon his shoulders." When the successor of this tyrant was told, that the finest provinces in the empire were invaded by the Turks, he answered coolly, "that their progress gave him but very little disturbance, provided they would leave him the city of Ispahan." The son of the latter was so meanly enslaved to the most frivolous observances of his religion, that he was filled by way of derision, Hussein the monk, or priest: a character less odious, perhaps, in a prince, but much more dangerous to his people, than that of impiety, or defiance of the gods.

It is a matter of astonishment, that the great Abbas should have combined some views of public utility with this government, which was naturally oppressive. He patronized the arts, and established them in the capital, and in the provinces. All who came into his dominions, if they possessed talents of any kind, were sure of being well received, assisted, and rewarded. He would often say, that strangers were the best ornaments of an

an empire, and added more to the dignity of the prince, than the pomp of the most refined luxury.

While Persia was rising its from ruins by the different branches of industry that were every where established, a number of Armenians, transplanted to Isphahan, carried the spirit of commerce into the heart of the empire. In a little time, these traders, and the natives of the country who followed their example, spread themselves over the east, into Holland, England, the Mediterranean, and the Baltic, and wherever commerce was carried on with spirit and advantage. The Sophi himself bore a part in their enterprises, and advanced them considerable sums, which they employed to advantage in the most celebrated marts in the world. They were obliged to return the capital on the terms agreed upon, and if they had increased it by their industry, he granted them some recompence.

The soil is in some parts extremely fertile, while others, being mountainous and sandy, are perfectly barren. The earth being naturally dry, those plains and vallies are most fruitful through which the water naturally flows, or has been conducted by art. The most fertile provinces are Media, Iberia, Hyrcania, and Bactria; while the country along the Persian gulph is more sterile than any other part of the kingdom.

In their manners the Persians are brave, sensible, lively, humane, and hospitable. Their only foibles seem to be profuseness and vanity; for the richness of their cloaths, their superb equipages, and the amazing number of their servants, too often exceed their finances, and bring them into difficulties. They usually breakfast on coffee, very early in the morning, and dine upon fruits, sweetmeats, and milk, at eleven. Supper is their chief meal, which usually consists of a dish of pilau. They never use either knives, forks, or spoons; neither do they eat pork, or any other animal prohibited to the Jews. All their meat is seasoned very high with salt and spices, and they always dress it the same day it is killed; their bread, which is excellent, is baked into thin cakes, which saves them the trouble of cutting it. At their meals their cloth is spread upon a carpet, and they all sit cross-legged upon the floor; but when Europeans visit them, they are generally accommodated with stools. Their usual drink is water and sherbet, wine being prohibited: great quantities of it are, however, drank, particularly by the officers and soldiers, and none make any scruple of intoxicating themselves with opium. Their method of smoking tobacco is through a tube fixed in water, so as to be cool in the mouth; and they are so attached to this amusement, that, whenever it has been prohibited by their princes, many have been known

to quit their country. The Persians are not less jealous of their women than the Turks, and there is no country where they are more strictly watched and confined, particularly in the harems of their princes, and great men. When the king's women remove, they are sent away in covered litters, with a strong guard; and all men, who reside in the places through which they are to pass, receive orders to quit their habitations, and remove to a considerable distance, on pain of death.

The vegetable productions of Persia are wheat, barley, rice, millet, plenty of culinary herbs, plants, roots and pulse; all kinds of the choicest European fruits, but fairer and better, particularly the melons, of which there are twenty different sorts. The apricots, peaches, and nectarines, are delicious; some of them weigh eighteen ounces; and many of the pomegranates a pound each. There are also nine or ten sorts of very fine grapes, from which they make excellent wine; pistaches, dates, almonds, nuts, filberts, and figs, likewise abound there. Manna, senna, rhubarb, and other valuable drugs, are found here in plenty. Tobacco grows all over Persia; saffron is cultivated in many parts of it; and the plant hiltot, from whence the assafoetida is collected, grows common every where, but abounds most in Chorassan. There are two sorts of this gum, the white and the black, the latter of which is most esteemed; vast quantities of it are consumed by the Indians, who mix it in their ragouts and sauces. Persia, particularly near Isfahan, has always been famous for the beauty and odour of its flowers, and from some of them, especially roses, the natives extract waters both of salubrious and odorific kinds, which form a considerable article in their commerce.

The English and other nations carry on a considerable trade with the Persians, particularly by the gulph of Ormus at Gombroon, by the way of Turkey, and formerly by the way of Russia through the Caspian sea; but the latter is at present prohibited by the court of Petersburg, from an apprehension that the English would instruct the Persians in the art of ship-building, and by that means enable them to dispute with the Russians the navigation of the Caspian sea, which they now, in a manner, wholly possess. Few branches of commerce were more profitable than that carried on some time ago between Gombroon and Surat in the East-Indies; but since the civil wars commenced in Persia, this trade has been very trifling.

The principal commodities and manufactures of Persia are, silk, raw and wrought; it being computed, that this kingdom produces yearly upwards of twenty-two thousand bales, each bale weighing two hundred and sixty-three pounds; mohair, camblets,

camblets, carpets, and leather, all which for neatness, richness, and elegance, surpass those of most countries, and are excelled by none. Their silver and gold laces, and threads, preserve their lustre for a considerable length of time; thier embroideries and horse furniture remain unrivalled; and their dying excels that of the Europeans.

A R A B I A.

Arabia is one of the largest peninsulas in the known world. It is bounded by Syria, Diarbeck, and Irac-Arabi, on the north; by the Indian Ocean, on the south, by the gulph of Persia on the east, and on the west by the Red Sea. which separates it from Africa. It is commonly divided into three parts; Arabia Petraea, Arabia Deserta, and Arabia Felix, which names denote the nature of the soil in each of these countries.

Arabia Petraea is the most western and the smallest of the three. It is for the most part uncultivated, and almost totally covered with rocks. In Arabia Deserta nothing is to be seen but dry plains, heaps of sand raised and dissipated by the wind, and steep mountains never embellished with verdure. Springs are so rarely found there, that the possession of them is always disputed with the sword. Arabia Felix owes its specious appellation less to its fertility, than to its vicinity to the barren countries that surround it. These different regions, though exposed to great heats, enjoy a sky constantly pure and serene.

This country was peopled by the descendants of Ishmael, but we cannot find at what period their form of government began; whether their knowledge was derived from India, or whether they acquired it themselves. It appears that their religion was Sabeism even before they were acquainted with the people of Upper Asia. They had conceived sublime ideas of the divinity at an early period: they worshipped the stars as bodies animated by celestial spirits: their religion was neither cruel nor absurd; and though they were liable to those sallies of enthusiasm so common among the southern nations, they do not seem to have been tainted with fanaticism till the time of Mohammed. The inhabitants of Arabia Deserta professed a worship not quite so rational. Many of them worshipped, and some offered human sacrifices to, the sun. It is a truth that may be collected from the study of history, and the inspection of the globe, that the religious systems in barren countries, subject to inundations and volcanos, have ever had a tincture of cruelty, and have always been of a milder cast in countries more favoured by nature. They take their character from the climate where they are formed.

The

The number of Arabians who inhabit the desert may amount to two millions. They are distributed into several clans, some of which are more populous and considerable than others, but all independent of each other. Their government is simple: an hereditary chief, assisted by a few old men, determines all debates, and punishes the offenders. If he is hospitable, humane, and just, they adore him; if haughty, cruel, and avaricious, they assassinate him, and appoint a successor out of his own family.

These people encamp at all seasons of the year. They have no settled abode, and fix at different places where they can be supplied with water, fruits, and pasture. They find an infinite charm in this wandering life, and consider the sedentary Arabs in the light of slaves. They live upon the milk and flesh of their herds. Their habits, tents, cordage, and the carpets they sleep upon, are all made of the wool of their sheep, and the hair of their goats and camels. This is the employment of the women in each family; and there is not a single artist in the whole desert. What they consume in tobacco, coffee, rice, and dates, is purchased with the butter they carry to the frontiers, and by the money arising from the annual sale of twenty thousand camels, at least, at forty-eight livers [two guineas] a head. These animals, so useful in the east, ere formerly carried to Syria. Most of them are now sent to Persia, the perpetual wars there having occasioned an extraordinary demand for them, and diminished their species.

These articles not being sufficient to supply the Arabs with what they wanted, they have contrived to raise a contribution on the caravans, which superstition leads to travel through their sandy regions. The most numerous of these, which goes from Damar to Mecca, procures a safe passage by the payment of a hundred purses, or a hundred and fifty thousand livers, [6562l. 10s.] to which the Grand Signior is subjected, and which, by ancient agreement, is distributed among all the hords. The other caravans make similar terms with the hords, through whose territories they are obliged to pass.

Independent of this expedient, the Arabs inhabiting the most northern part of the desert have had recourse to plunder. These people, so humane, faithful, and disinterested towards each other, are savage and rapacious in their transactions with foreigners. While they preserve in their tents the character of beneficent and generous hosts, they commit continual depredations in the towns and villages of their neighbourhood. They are good fathers, good husbands, and good masters; but all are enemies who do not belong to their family. They frequently carry
their

their incursions to a great distance; and Syria, Mesopotamia, and Persia, are not uncommonly the scenes of their depredations.

The Arabs, who devote themselves to plunder, form a sort society with the camels, to carry on trade or war, where the man is to have all the profit, and the animal the principal fatigue. As these two beings are to live together, they are brought up with a view to each other. The Arab trains his camel from its birth, to all the exercises and hardships it is to undergo during the whole course of its life. He accustoms it to travel far, and eat little. The animal is early inured to pass its days without drinking, and its nights without sleep. He teaches it to draw up its legs under its belly, while it suffers itself to be laden with burthens, that are insensibly increased as its strength is improved by age and by the habit of bearing fatigue. In this singular plan of education, which princes sometimes adopt the more easily to tame their subjects, in proportion as the labour of the animal is doubled, its subsistence is diminished. The Arabians qualify the camels for expedition, by matches, in which the horse runs against him. The camel, less active and nimble, tires out his rival in a long course. When the master and the camel are ready and equipped for plunder, they set out together, traverse the sandy deserts, and lie in ambush upon the confines to rob the merchant or traveller. The man ravages, massacres, and seizes the prey: and the camel carries the booty. If these adventurers are pursued, they make a precipitate retreat. The master robber mounts his favourite camel, drives the whole troop before him, travels three hundred leagues in eight days without unloading his camels, or allowing them more than an hour each day for rest, or a cake of dough for their subsistence. They sometimes remain the whole time without drinking, unless they happen to see a spring at a little distance from the road, when they redouble their pace, run to the water with eagerness, which makes them take at one draught as much as is sufficient to quench their present thirst, and serve them to the end of their journey. Such is the animal so often celebrated in the Bible, the Coran, and the Eastern Romances.

The Arabs, who live in districts that afford some slender pasture, and where the soil is proper for barley, breed the finest horses in the world. These horses are sent into all parts to improve and multiply the breed of these animals, which are every where inferior in swiftness, beauty, and sagacity, to those of Arabia. Their owners live with them as with domesticks, on whose service and affection they can rely: and it happens with them as with all other wandering people, those in particular

lar who treat animals with kindness, that both the men and the animals partake, in some measure, of each other's manners and disposition. These Arabs are simple, mild, and docile: and the different religions that have prevailed in these countries, and the several governments of which they have been the subjects or tributaries, have produced very little alteration in the character they derive from climate or from habit.

The cultivated lands in the southern parts of Arabia Felix, which are chiefly about the towns near the sea-coast, yield exceeding fine coffee, manna, myrrh, cassia, aloes, balm of Gilead, frankincense, spikenard, and other valuable gums; cinnamon, pepper, and cardamoms; oranges, lemons, pomegranates, figs, dates and other fruits, with a small quantity of corn and wine.

The coffee-tree is originally a native of upper Ethiopia, where it has been known time immemorial, and is still cultivated with success. M. Lagrenée de Mezieres, one of the most intelligent agents that France ever had in the India service, had some of the fruit in his possession, and has made trial of it. He found it to be larger, rather longer, not so green, and almost as fragrant as that which was first gathered in Arabia towards the close of the fifteenth century.

It is commonly believed that a Mollach, named Chadely, was the first among the Arabs who made use of coffee, to relieve himself from a continual drowsiness which hindered him from attending punctually to his nightly devotions. His dervises did the same: and their example was followed by the lawyers. It was soon found out, that this liquor purified the blood by a gentle agitation, dissipated the crudities of the stomach, and raised the spirits: and it was adopted even by those who had no occasion to keep themselves awake. It passed from the borders of the Red Sea to Medina and Mecca, and was introduced by the pilgrims into all the Mohammedan countries.

In these countries, where there is less freedom of manners than in ours, where the jealousy of the men and the close confinement of the women make society less lively, it was thought proper to encourage public coffee houses.

Those in Persia soon became infamous, where young Georgian women, dressed like courtezans, acted obscene plays, and prostituted themselves for hire. When these offensive irregularities were suppressed by order of the court, these houses became places of genteel resort for the indolent, and of relaxation for the busy part of the world. The politicians entertained themselves with news, the poets recited their verses, and the Mollachs delivered their sermons, which were usually rewarded with some charitable donations.

Affairs

Affairs were not in the same peaceable state at Constantinople. The coffee-houses were no sooner opened than they were frequented to excess. People spent their whole time in them. The grand Musti, concerned to see the Mosques abandoned, pronounced that the infusion of this plant was included in that law of Mohammed, which forbids the use of strong liquors. Government, which frequently aids the superstition of which it is sometimes the dupe, gave immediate orders that the houses which had given such offence to the priests should be shut up; and enjoined the officers of police to put a stop to the use of this liquor in private families. The strong inclination they had for it still prevailed over all these severe regulations. Coffee continued to be drank, and the places where it was to be had soon grew more numerous than ever.

In the middle of the last century, Kuproli, the grand Vizir, went in disguise to the principal coffee-houses at Constantinople. He there found a number of mal-contents, who, thinking the affairs of government were in reality the concern of every private person, spoke of them with warmth, and arraigned with great boldness the conduct of the generals and ministers. He then visited the taverns, where wine was sold. They were full of plain people, chiefly soldiers, who, accustomed to consider the interests of the state as those of the prince, for whom they entertained a silent veneration, sung lively songs, talked of their amours, and warlike exploits. These last societies, which are attended with no inconveniencies, he thought ought to be tolerated: but the first he considered as dangerous in an arbitrary state. He therefore suppressed them, and no attempts have since been made to revive them. This regulation, which was confined to the capital of the empire, has not discouraged the use of coffee, and has, perhaps, increased the consumption of it. It is publicly offered to sale in all the streets and markets ready made, and is drank in every family at least twice a-day. In some it is always ready, it being the custom to offer it to all visitors, and reckoned equally unpolite not to offer it, or to refuse it.

At the same time that coffee-houses in Constantinople were shut, they were opened in London. This novelty was introduced there in 1652 by a merchant of the name of Edward, who returned from the Levant. The English grew fond of it; and it has since been introduced among all the nations of Europe, but is drank with more moderation than in those climates where religion prohibits the use of wine.

The tree that produces the coffee grows in the territory of Betelsagui, a town belonging to Yemen, situated on a dry

sand, at the distance of ten leagues from the Red Sea. It is cultivated in a district fifty leagues long, and fifteen or twenty broad: the fruit is not every where in equal perfection. That which grows upon high ground is smaller, greener, weighs heavier, and is generally preferred.

It is computed that Arabia contains twelve millions of inhabitants, among whom, in general, coffee constitutes a favourite article in their entertainments. None but the rich citizens have the pleasure of tasting the berry itself. The generality of the people are obliged to content themselves with the shell and the husk of this valuable production. These remains, so much despised, make a liquor of a pretty clear colour, which has the taste of coffee without its bitterness and strength. These articles may be had at a low price at Betelsagui, which is the general market for them. Here likewise is sold all the coffee which comes out of the country by land. The rest is carried into Mocha, which is thirty-five leagues distant, or to the nearer ports of Lohia or Hodeida, from whence it is transported in small vessels to Jodda. The Egyptians fetch it from the last-mentioned place, and all other nations from the former.

The quantity of coffee exported may be estimated at twelve millions five hundred and fifty thousand weight. The European companies take off a million and a half; the Persians three millions and a half; the fleet from Suez, six millions and a half; Indostan, the Maldives, and the Arabian colonies on the coast of Africa, fifty thousand; and the Caravans a million.

As the coffee which is brought up by the Caravans and the Europeans, is the best that can be procured, it costs from sixteen to seventeen sols* a pound. The Persians, who content themselves with that of an inferior quality, pay no more than twelve or thirteen solst a pound. The Egyptians purchase it at the rate of fifteen or sixteen†; their cargoes being composed partly of good and partly of bad coffee. If we estimate coffee at fourteen sols‡ a pound, which is the mean price, the profits accruing to Arabia from its annual exportation will amount to 8,785,000 livres§. This money does not go into their coffers; but it enables them to purchase the commodities brought from the foreign markets to their ports of Jodda and Mocha.

[To be continued.]

* About 8½d.

‡ About 7½d.

† About 6½d.

§ 384,343l. 15s.

‡ About 8d.

ART. II.

ART. II. A MODERN UNIVERSAL TABLE. *The most copious and authentic that ever was published, of the present State of the real and imaginary Monies of the World, in Europe, Asia, Africa, and America.*

[From Guthrie's New System of Geography, 4to.]

EXPLANATION. By real Money, is understood an Effective Specie, representing in itself, the Value denominated thereby, as a Guinea, &c.

* This Mark is prefixed to the imaginary Money, which is generally made Use of in keeping Accompts, signifying a fictitious Piece which is not in being, or which cannot be represented but by several other Pieces, as a Pound Sterling, &c.

All Fractions in the Value English are Parts of a Penny.

= This Mark signifies, is, make, or equal to.

Note. For all the Spanish, Portuguese, Dutch, and Danish Dominions, either on the Continent, or in the West-Indies, see the Money of the respective Nations.

Northern Parts of EUROPE.

ENGLAND and SCOTLAND.

London, Bristol, Liverpool, &c. Edinburgh, Glasgow, Aberdeen, &c.

			£.	s.	d.
A Farthing	=		0	0	0 $\frac{1}{4}$
2 Farthings	=	a Halfpenny	0	0	0 $\frac{1}{2}$
2 Halfpence	=	a Penny	0	0	1
4 Pence	=	a Groat	0	0	4
6 Pence	=	a Half Shilling	0	0	6
12 Pence	=	a Shilling	0	1	0
5 Shillings	=	a Crown	0	5	0
20 Shillings	=	a * Pound Sterling	1	0	0
21 Shillings	=	a Guinea	1	1	0

IRELAND.

Dublin, Cork, Londonderry, &c.

A Farthing	=		0	0	3 $\frac{1}{3}$
2 Farthings	=	a Halfpenny	0	0	0 $\frac{2}{3}$
2 Halfpence	=	* a Penny	0	0	0 $\frac{12}{13}$
6 $\frac{1}{2}$ Pence	=	a Half Shilling	0	0	6
12 Pence	=	* a Shilling Irish	0	0	11 $\frac{3}{40}$
13 Pence	=	a Shilling	0	1	0
65 Pence	=	a Crown	0	5	0
20 Shillings	=	* a Pound - Irish	0	18	5 $\frac{1}{2}$
22 $\frac{1}{2}$ Shillings	=	a Guinea	1	1	0

B 3

FLANDERS

The FARMER'S MAGAZINE,

FLANDERS and BRABANT.

Ghent, Ouden, &c. Antwerp, Bruges, &c.

* A Pening	=		0	0	0	$\frac{1}{16}$
4 Penings	=	an Urche	0	0	0	$\frac{1}{4}$
8 Penings	=	a Grote	0	0	0	$\frac{1}{2}$
2 Grotes	=	a Petard	0	0	0	$\frac{1}{8}$
6 Petards	=	* a Scallin	0	0	0	$\frac{1}{16}$
7 Petards	=	a Scallin	0	0	0	$\frac{1}{16}$
40 Grotes	=	* a Florin	0	1	6	
17 $\frac{1}{2}$ Scallins	=	a Ducat	0	9	3	
240 Grotes	=	* a Pound Flem.	0	9	0	

HOLLAND and ZEALAND.

Amsterdam, Rotterdam, Middleburg, Flushing, &c.

* Pening	=		0	0	0	$\frac{1}{16}$
8 Penings	=	* a Grote	0	0	0	$\frac{1}{2}$
2 Grotes	=	a Stiver	0	0	1	$\frac{1}{16}$
6 Stivers	=	a Scallin	0	0	6	$\frac{1}{16}$
20 Stivers	=	a Guilder	0	1	9	
50 Stivers	=	a Rix-dollar	0	4	4	$\frac{1}{4}$
60 Stivers	=	a dry Guilder	0	5	3	
105 Stivers	=	a Ducat	0	9	3	
6 Guilders	=	* a Pound Flem.	0	10	6	

G E R M A N Y.

HAMBURG, Altona, Dube, Bremen, &c.

* A Tryling	=		0	0	0	$\frac{1}{16}$
2 Trylings	=	* a Sexling	0	0	0	$\frac{1}{8}$
2 Sexlings	=	a Fening	0	0	0	$\frac{1}{16}$
12 Fenings	=	a Shilling Lub.	0	0	0	$\frac{1}{16}$
16 Shillings	=	* a Marc	0	1	6	
2 Marcs	=	a Slet dollar	0	3	0	
3 Marcs	=	a Rix dollar	0	4	6	
6 $\frac{1}{4}$ Marcs	=	a Ducat	0	9	4	$\frac{1}{4}$
120 Shillings	=	a Pound Flem.	0	11	3	

HANOVER, Lauenburgh, Zell, &c.

* A Fening	=		0	0	0	$\frac{1}{16}$
3 Fenings	=	a Dreyer	0	0	0	$\frac{1}{16}$
8 Fenings	=	a Marien	0	0	1	$\frac{1}{16}$
12 Fenings	=	a Grosh	0	0	1	$\frac{1}{16}$
8 Groshen	=	a Half Gulden	0	1	2	
16 Groshen	=	a Gulden	0	2	4	
						24 Groshen

24 Groschen	=	* a Rix-dollar	-	0	9	6
32 Groschen	=	a Double Gulden	-	0	4	8
4 Gulden	=	a Ducat	-	0	9	2

SAXONY and HOLSTEIN.

Dresden, Leipzig, &c. Wismar, Rostock, &c.

* An Heller	=	-	0	0	0
2 Hellers	=	a Fening	-	0	0
6 Hellers	=	a Dreyer	-	0	0
16 Hellers	=	a Marien	-	0	0
12 Fenings	=	a Grosh	-	0	0
16 Groschen	=	a Gould	-	0	2
24 Groschen	=	* a Rix-dollar	-	0	3
32 Groschen	=	a Specie dollar	-	0	4
4 Goulde	=	a Ducat	-	0	9

[To be continued.]

ART. III. Address to the Professors of Agriculture on the Cheapness of Products.

WHILE we see books publishing under names with an *P. R. S.* at the end to instruct farmers how to manage their lands, and others by members of foreign Academies of Agriculture and Economical Societies, it would become some of these learned professors of scientific husbandry to give assistance to the farmers of England in the present moment, when some of them are said to be ruined by the extreme cheapness of most of their products.

While wheat, barley, rye, and butcher's meat, are so low priced, what are the crops our husbandmen ought to attempt, which will in a fair price enable them to pay their rents?

Is there any routine of management peculiar to new crops that should now be pursued with this view?

How far would it be right to apply to hemp, flax, tobacco, woad, madder, hops? Do these and other articles keep up their price?

Are osieries for baskets a profitable article at present?

How far will it answer in these cheap times to apply grain to the feeding and fattening of hogs and poultry?

What at present is the balance between the price of the products of tillage, and those of pasturage? In which is it most favourable? Will it answer to lay arable land down to grass?

Is

Is the exportation of horses as brisk as ever? Will it answer to apply large tracts to breeding them?

Here, Gentlemen, is a category of subjects for you to consider—Have done with your essays, your experiments, and your old lucubrations, that are not particularly adapted to the present moment, and apply to these points of immediate importance which cannot have at this time too much of your attention.

Those farmers who are not enlightened enough to change their husbandry at present, must inevitably be ruined—to point out the mode and means of doing it is the great object of consequence to the whole kingdom at large, as well as to the farmers in particular.

RURICOLA.

ART. IV. *Observations on the best method of Destroying Vermin, and preventing the destruction of young Turnips by the Fly:* In a Letter to the Secretary of the Bath Society.

S I R,

OBSERVING in the resolutions of your Annual Meeting, that the society propose taking some land into their own hands for the purpose of making experiments in agriculture, I beg leave to offer the account of a few trials I have made to prevent the destruction of seed and springing grain, pulse, &c. by vermin of different kinds. I am not excited to write by motives of interest, or honour; but wish to cast in my mite for the promotion of useful knowledge.

I have for some years past left off trade, and taken a small estate into my own hands, principally for my own amusement and instruction in the operations of nature.

As I am fond of a garden, I have frequently attempted to raise early pease; but was often disappointed by their being destroyed by mice. To remedy this, I considered, that *sweets* were their delight; and ordered the gardener to steep both my pease and beans in common water three hours; and after sowing them in drills as usual, to shake some coal chimney soot over them pretty thick before he covered them in; by which means I have not lost any for several years, and the soot proves a good manure.

Soon after I took the farm, I found I had many enemies to encounter with; such as the Black Flea*, Grub Worms, Birds, Rats,

* By the subsequent part of this letter, it appears, our author means the Fly that preys on young turnips.

Rats, &c. I generally sow cabbage seed enough to plant out two acres of land, for the support of my ewes and lambs* in the spring when grass is scarce. But when I first took my farm, after several sowings, I could scarcely raise enough for my purpose, the Black Flea having eaten them off while young; but considering that this insect loves to be in the sunshine, I sowed my seed under the shade of apple trees, and was not disappointed. This last summer twelve-month I attacked them in the sunshine by sowing the seed in the garden, and scattering foot on the ground directly, by which means all my seedling plants were saved. This last summer absence from home prevented my repeating the experiment. It is, however, an easy trial for gentlemen to make; and I think it may be depended on as an effectual remedy.

Chaffinches are also very eager in preying on seedlings soon after they are out of the ground, pulling them up by the roots, altho' they only eat the seed leaves. But whether they would attack them on ground that has been sown with foot, I cannot from my own experience say—the experiment is, however, easy and worth making. I think the best mode of trying it would be, while the dew is on the ground, for some person to powder the seedling plants lightly over with foot before the third leaf appears. It is probable that the bitter flavour of foot is very disgusting to birds as well as insects.

The first year I succeeded very well in planting out my cabbages; the weight of the crop being from ten to twenty pounds, which was equal to my expectation, considering the ground was light and sandy.

The next year, I sowed my cabbage seed as usual. When the plants were fit for transplanting from the seed bed, I attended, and found many of them had knobs or warts on the roots, some the size of a pea, and some larger. On cutting some of these knobs off I found a small worm inclosed. I ordered them to be planted out; and, looking over the ground after they had formed pretty good heads, I observed many of them looked sickly, having a bluish cast on the leaves. I pulled several of them out of the ground, and found the roots swelled as big as a child's fist, the grub-worms being then come to perfection.

To prevent this, transplant only such as are quite clean from warts. At the time of planting, the ground is frequently dry, and sometimes even scorched with heat. In that case, let the planter,

* This Gentleman seems not aware how good and profitable cabbages are early in spring for oxen.

planter, after making a hole with his dibble, pour in some water, and stir it in till he has made the earth a soft puddle*. A boy should then dip the roots of the plants into water, and then into dry soot immediately before they are planted. According to my idea this will prevent the grub from ever touching them.

I shall now follow the grub worms and birds into corn fields. The two first years of my sowing wheat I could not get, from nine or ten acres produce, more than ten bushels per acre. On a nice examination, I found the grub-worm attacked my wheat *under ground*, and birds of various sorts *above* it. It was necessary to seek for a remedy. I ordered two bushels of feed wheat to be put on the barn floor as usual, with a proper quantity of lime and sea water (some use brine.) I then ordered a quarter of a peck of soot to be added, and worked well in with the corn, that all might be rendered bitter by it. If a larger quantity of soot is used, the better, as it proves good manure.

My success the first year was, that I had twenty bushels on an average per acre—this last summer the produce was still larger. After sowing, my servant told me, that if I did not send a person to frighten the birds, the wheat would be half carried away; however, I let it alone to see the effect of the soot. Pheasants and partridges had scraped the ground very much. I particularly marked the spots, and at harvest found the corn thicker there than in other places. This convinces me that the birds could not find any corn suited to their palates, the soot having rendered it very bitter; and I had a good crop for so light a soil.

Secondly, the crops of young turnips are frequently destroyed by the black flea [fly] notwithstanding many things have been tried to preserve them; all of which, I am informed, have failed. On this subject I will offer a few thoughts. The sense of smelling in the black flea [fly] and in all other insects, is exquisitely acute. Without it they know not one plant from another, as their sphere of vision is probably confined to a very few inches. It is by this sense that they are guided to their proper food. The only thing necessary, then, is to overpower the sweet smell they are attracted with by one that is strongly fetid, or disagreeable.

What I would therefore propose is, that an acre of turnips be sown in the usual way; and after the ground is finished, for the seedsmen to throw on a peck or more of dry soot, as regular as he sows the seed. If I am not very much mistaken, this will

* This is certainly a good method, and may be practised in a *Garden*—but when a Farmer wants to plant several acres, the process would be too tedious, if not quite impracticable.

will banish or destroy all the black fleas, and by that means save the crop.

Thirdly, when I came first to the house I now inhabit, we were much troubled in the night by the noise of rats. Mentioning this circumstance to the farmer who was about to leave the premises, he told me they had done much damage in the barns, and corn ricks. In the side of a bank which ran along a path-way to my barn I observed a number of holes, in which the rats harboured and bred in warm weather. The next day, making some matches of slips of brown paper dipt in brimstone, I put them into the holes, the mouths whereof I stopt to drive the smoke into them. After the matches were burnt out, my man opened the ground, where we found several nests; but both old and young were fled. The rats left my house, barn, and stables, directly; and for five years past have never returned. The disagreeable smell of the burnt brimstone, doubtless, occasioned their leaving the premises.

I therefore would propose, that when a barn is cleaned out just before harvest, a pan of charcoal be lighted up in it, and some pieces of brimstone thrown on the fire to fumigate the whole barn. If the doors and windows are shut close, this will be done most effectually.

Fourthly, having a field over-run with moles, I had the fresh mole-hills shoveled off, and the holes opened, I burnt a match in each, keeping in the smoke. The consequence was, that all the moles left the field directly, and returned no more. But should they return in future it is only repeating the experiment, and I doubt not but it will have the same effect. I shall now conclude for the present, but may probably employ some future hour in sending such other observations as may occur in the course of my experience; and which may be useful in promoting the laudable purposes intended by your institution, to which I wish all possible success; and am, with great respect,

Yours, &c.

J. J.

ARNE, near WAREHAM,
Dorsetshire, Jan. 20, 1780.

ART. V. *Advantage of loading Waggons on the hinder part.*

Mr. SYLVAN,

IN order to prove the advantage of loading waggons chiefly on the hind part, the following decisive experiments were made. On a smooth board placed exactly horizontal—at one end was placed a model of a carriage on four wheels; on the

fore-part of which was fixed a line, extending over a pully, placed at the other end of the board, at the end of which line was hung a scale weighing one ounce. The fore part of the carriage was then loaded to eighteen pounds weight. On the application of two ounces into the scale, it drew it gently along the plane, or board, till the scale reached the ground. These three ounces, or six half ounces, may be in other words called the power of six horses. The weight was then placed on the middle part of the carriage, and half an ounce, or one horse, taken off; the remaining two ounces and a half, or five horses, then drew it with the same ease as the six had done before. The weight was then placed on the hind axle; and then three half ounces, or three horses more, were taken off, and the remaining two in the scale drew the carriage with equal ease, as the six had done while the load was on the fore axle.

The experiment was then made on an inclined plane, or board, placed on a slope of five degrees. This may represent a hill, which, if continued one mile in the same direction, would be 491 feet one inch and a half higher at the top than at the bottom. The carriage being set at the bottom of this plane, it required 60 half ounces, or horses, to bring up the same load upon the fore axle. The weight being placed on the hind axle, two ounces, or four horses less, did the business with the same ease as before.*

The friction in the small wheels of waggons, and coaches, is double to that of the large wheels, as the former revolve twice while the other revolve only once.

Narrow wheels frequently push stones aside, which broad ones are checked by in going over them. Fore wheels level a track for the large ones, which follow the more easily.

* From these experiments it appears, that although in going up hill, there is some advantage in loading backwards, yet on level ground it is much the greatest, and indeed greater than could be imagined, did not experiment confirm it beyond all doubt.

ART. V. *Easy Cure for a Cough.*

TAKE three spoonfuls of the best horey, add to it one spoonful of brandy, mix them well together, and take a spoonful when the cough is violent. The use of wine, particularly red, to be avoided, and tea or other diluting liquors useful.

Mr.

Mr. SYLVAN,

The following is extracted from the last published Annual Register; if it merits a place in your Magazine, it may tempt me to make some other selections from the same entertaining Work. I am, your occasional Reader, X.

ART. V. *A Cure of a Muscular Contraction by Electricity.*

[From the Philosophical Transactions.]

MR. Partington, in a letter addressed to Mr. Henley, F.R.S. gives the following account of the condition in which he found his patient, Miss Lingfield, when he first waited on her. Her head was drawn down over her right shoulder; the back part of it was twisted so far round, that her face turned obliquely towards the opposite side, by which she was disabled from seeing her feet, or the steps as she came down stairs. The sterno-mastoideus muscle was in a state of contraction and rigidity. She had no material pain on this side of her neck; but, owing to the extreme tension of the teguments of the left side, she had a pain continually, and often very violent, particularly in sudden changes of the weather. Her pulse was weak, quick, and irregular. She was subject to a great irritability, had frequently a little fever, which came on of an evening, and left her before morning; her spirits were generally exceedingly oppressed, and, at times, she was slightly paralytic.

Something more than two years from that period, she was suddenly seized, going out of a warm room into the cold air, with a pain upon the back of her head, which admitted of small abatement for some months, contracting gradually the muscles to the melancholy deformity we then beheld; and, notwithstanding every prudent means had been used to subdue it, the little variation in the case was on the unfavourable side.

I urged her to make trial of electricity—she came to me, and was electrified the first time Feb. 18, 1777. I sat her in an insulated chair, and, connecting it by a chain to the prime conductor of a large electrical machine, I drew strong sparks from the parts affected for about four minutes, which brought on a very profuse perspiration, (a circumstance she had been unaccustomed to) which seemed to relax the mastoideus muscle to a considerable degree; but as the sparks gave her a good deal of pain, I desisted from drawing them, and only subjected her a few minutes longer to the admission of the fluid, which passed off without interruption from the pores. She came to me again on the 24th of the same month: as she had been in the afternoon of the first day's experiment a good deal disor-

dered, I changed the mode of conducting, and sat her in common dining chair, while I dropped for five minutes, by means of a large discharging rod with a glass-handle, very strong sparks upon the mastoideus muscle, from its double origin at the stern and clavicle to its insertion at the back of the head. She bore this better than before, and the same good effect followed in a greater degree, and without any of the subsequent inconveniencies. I saw her the third time on the 27th; she assured me she had escaped her feverish symptoms on an evening, and that her spirits were raised by the prospect of getting well; that, since the last time I had electrified her, she had more freedom in the motion of her head than she had ever experienced since the first attack of her disorder. I persisted in electrifying her after the same manner, March 3d, 5th, 6th, 7th, and 9th; from each time she gained some advantage, and her feverish tendency and nervous irritability went off entirely.

The weather now setting in very unfavourable, and fearful of losing the advantages we had reaped from our early efforts, I requested the favour of you, as her neighbour, to electrify her every evening while she was in town, and she might, if any alteration took place, see me occasionally. Fortunately for her, you accepted the proposal, and to your judgment and caution in the conduct of it for the next fortnight (three evenings only excepted) you brought about the happy event; and have received her testimony of gratitude for relieving her from a condition under which life could not be desirable, to a comfortable association with her family and friends.

I am, &c.

The method I pursued was, to place the lady upon a stool with glass legs, and to draw strong sparks for at least ten minutes, from the muscles on both sides of her neck. Besides this, I generally gave her two shocks from a bottle containing fifteen square inches of coated surface fully charged, through her neck and one of her arms, crossing the neck in different directions. This treatment she submitted to with a proper resolution; and it gave me sincere pleasure to find it attended with the desired success.

Signed

W. HENLEY.

ART. VI. *Directions for the Management of BEES during the Winter.*

PROVIDENCE has ordained, that insects which feed on leaves, flowers, and green succulent plants, are in an insensible and torpid state from the time that the winter's cold has

has deprived them of the means of subsistence. Thus the Bees, during the winter, are in so lethargic a state, that little food supports them; but as the weather is very changeable, and every warm or sunny day revives them, and prompts them to return to exercise; food becomes necessary on these occasions. Some are of an opinion, that a greater degree of cold, than is commonly imagined to be proper for Bees, is favourable to them in winter. If a sharp frost continues for two or three months, without intermission, they have been observed all this time closely linked together in clusters between the combs: if they are not altogether without motion, yet it is certain they stir not from their places, while the cold continues, and therefore eat not at all.

For feeding them, observe the following directions; replenish the weak hives in September, with such a portion of combs full of honey, taken from other hives, as shall be judged to be a sufficient supply for them. In order to do this, turn up the weak hive, after taking the precaution of defending yourself with the smoke of rags; cut out the empty combs, and put the full ones in their place, where secure them with pieces of wood run across, in such manner that they may not fall down when the hive is returned to its place. The Bees will soon fix them more effectually. If this method be thought too troublesome, set under the hive a plate of liquid honey, unmixed with water, with straws across it, and over these a paper pierced full of holes, through which the Bees will suck the honey without daubing themselves. This should be done in cloudy or rainy weather, when the Bees stir least abroad; and the hive should be covered to protect the Bees from robbers, who might be allured to it by the smell of honey. Another circumstance, which may render it very necessary to feed the Bees, is, when several days of bad weather succeed immediately after they have swarmed; for then, being destitute of every supply beyond what they carried with them, they may be in great danger of being starved. In this case honey should be given them, in proportion to the duration of the bad weather.

The degree of cold which Bees can endure has not been ascertained. We find that they live in the cold parts of Russia, and often in hollow trees, without any care being taken of them. Their hives are frequently made of the bark of trees, which does not afford them much protection from cold. Therefore Bees which stand on the north-side of a building, whose height intercepts the sun-beams all the winter, will waste less of their provisions, almost by half, than others which stand in the

the sun ; for coming seldom forth, they eat little, and yet, in the spring, are as forward to work and swarm- as those which had twice as much honey in the autumn before. The owner should, however, examine their state in the winter, and if he finds, that, instead of being clustered between the combs, they fall down in numbers on the stool or bottom of the hive, the hive should be removed to a warmer place, where they will soon recover. Caution should be used in returning them again to the cold, lest the honey should be candied as before. Where the winters are severe, it would be adviseable to lay on the bottom of an old cask, the depth of half a foot of very dry earth, powdered, and pressed down hard, and to set on this the stool with the hive ; then, to preserve a communication with the air, which is absolutely necessary, to cut a hole in the cask, opposite to the mouth of the hive, and place a piece of reed, or of elder made hollow, from the mouth of the hive to the hole in the cask ; and after this to cover the hive with more of the same dry earth. If there be any room to fear that the Bees will not have a sufficiency of food, a plate with honey, covered as before directed, may be put under the hive. If the number of hives be great, boxes may be made of deals nailed together, deep enough to contain the hives when covered with dry earth. The Bees will thus remain all the winter free from any danger from cold, hunger, or enemies. Every hive should have at least twenty pounds of honey in it in the beginning of the winter. If short of that quantity, a reserved hive should be put to them, or they should be fed with clean honey, put into a pewter dish covered with paper, and put under the hive at night. For feeding Bees in boxes, three or four pounds of honey should be put in the box, which should be nine inches diameter, and two inches and a half deep, and turned out of a piece of red cedar, with a cover of the same wood fitted to it by a rabbit. On one side a piece is cut out to admit a nassel, four inches in breadth, and one inch clear of the turned vessel in length ; the opening for the Bees to pass from the hive to the honey, half an inch in height. In the middle of the cover a hole is made, in which is a pane of glass, in order to see when the honey is eaten up. A piece of paper of the exact dimensions of the cavity of the box, pierced with holes, through which the Bees may suck, must be laid on the surface of the honey ; and in the evening the entrance into this box being closely applied either to an opening made in the back of the lower part of the bee-boxes, and securely supported in that situation, or the mouths of the bee-boxes, the Bees will soon smell the honey, and carry it all off by morning. By this means robbers are not tempted, indeed have no
oppor

opportunity of annoying them, for the box is removed in the morning. If the first quantity is not deemed sufficient, the same may be repeated the next night; for every wise Keeper of Bees will take care that they be plentifully provided.

That Bees suffer such degrees of cold, as we here are strangers to, without detriment, seems certain; nor is it easily accounted for, why a much less degree of cold becomes fatal to them in our mild climate, unless it be, that in an extreme degree of cold, the Bees are so perfectly frozen, that their juices cannot corrupt or putrefy; but they remain in the same state till the return of spring; when the change of the weather being sudden, the Bees soon come to life; whereas in our climate, they are so far chilled, as to lose the signs of life, and their juices being still in a liquid state, soon putrefy, and real death ensues, with corruption, the stench of which proves destructive to the live bees, if the dead bodies remain long in the hive. It is therefore a good rule to examine the hive from time to time, whether any Bees fall to the bottom, that if they do, the seeming or real dead should be removed.

Hives should never be placed on stones, because they are susceptible of too much heat in the summer, and are so cold in the winter, that it is an immediate death to every Bee that lights on them. Even wood is then too cold; and therefore it is best for the owners of Bees to have straw bottoms, to be laid under the hive during the winter, that when the bees descend, they may not be chilled by the coldness of the substance they light upon. So soon as the weather becomes mild in the spring, the straw bottoms should be taken out and cleaned, and put under the hive again, to remain there till the danger of the frost is past. The hives should be then carefully again cleaned, and the quantity of honey examined into; for if the weather comes in so warm as to tempt the Bees out, a greater quantity of food becomes necessary to support them in this labour, at a time in which plants yield little of that juice which constitutes honey; especially if the weather is dry and windy. In April their young brood occasions an additional consumption of honey; and therefore a supply becomes peculiarly necessary; and should be given to them as above directed. Owing to this neglect, many hives are lost so late as in the month of May. Every hive should have a thick covering of straw, properly secured at top, put over it, to throw off the rain, as well as keep the Bees warm. Some people advise putting a kind of grating before the doors of the hives during the winter; which at the same time that it prevents the Bees going out to their destruction, admits sufficient air. This appears

pears to be wrong, because that as it is necessary they should eat a little, so they must go out at times to discharge their excrements. They have the sagacity to judge of the proper degree of cold, and when they feel it too great upon coming to the door, they drop their excrements upon the stool, and return to their companions, unless they are allured out by a very bright sun. On this account it is proper, that during the winter, the mouth of the hive should not face the sun at noon, but rather the west. The mouths of the hives should be lessened so much during the winter, by means of a slider fitted to each that there may be room left only for air, and to afford a passage to two or three Bees. Even in spring many Bees lose their lives, being tempted out by a bright sun in search of food. The mouth of the hive should therefore be continued facing the west, till all danger from the cold is past: for if the mouth be placed to the south, a clear morning may carry them out, being tempted by the glare of light which shines in; but such a morning often brings a cloudy afternoon, which then prevents their going out. When the season for working comes on, they must not be restrained from going out by any bar in their way; for they become then so impatient of confinement, that they will even die in search of an outlet, rather than bear imprisonment.

ART. VIII. *Method of taking the Honey, without destroying the BEES.*

REMOVE the hive from which you would take the wax and honey into a room, in which admit but little light, that it may first appear to the Bees as if it was late in the evening. Gently invert the hive, placing it between the frames of a chair, or other steady support, and cover it with an empty hive, keeping that side of the empty hive raised a little which is next the window, to give the Bees sufficient light to get up into it. While you hold the empty hive steadily supported on the edge of the full hive, between your side and your left arm, keep striking with your other hand all round the full hive from top to bottom, in the manner of beating a drum, so that the bees may be frightened by the continued noise from all quarters; and they will in consequence mount out of the full hive into the empty one. Repeat the strokes rather quick than strong round the hive, till all the Bees are got out of it, which in general will be in about five minutes. It is to be observed, that the fuller the hive is of Bees, the sooner they will have left it. As soon as a number of them have got into the empty hive, it should

should be raised a little from the full one, that the Bees may not continue to run from one to the other, but rather keep ascending upon one another. So soon as all the Bees are out of the full hive, the hive in which the Bees are must be placed on the stand from which the other hive was taken, in order to receive the absent Bees as they return from the fields. If this is done early in the season, the operator should examine the cells, that any that have young in them may be saved, as well as the combs which have young Bees in them, which should not on any account be touched, though by sparing them a good deal of honey be left behind. Then take out the other combs with a long, broad, and pliable knife, such as the apothecaries make use of. The combs should be cut from the sides and crown as clean as possible, to save the future labour of the Bees, who must lick up the honey-spilt, and remove every remains of wax: and then the sides of the hive should be scraped with a table-spoon, to clear away what was left by the knife. During the whole of this operation, the hive should be placed inclined to the sides from which the combs are taken, that the honey which is spilt may not daub the remaining combs. If some combs were unavoidably taken away, in which there are young Bees, the parts of the combs in which they are should be returned into the hive, and secured by sticks in the best manner possible. Place the hive then for some time upright, that any remaining honey may drain out. If the combs are built in a direction opposite to the entrance, or at right angles with it, the combs which are farthest from the entrance are to be preferred; because there they are best stored with honey, and have the fewest young Bees in them. Having thus finished taking the wax and honey, the next business is to return the Bees to their old hive; and for this purpose place a table covered with a clean cloth, near the stand, and giving the hive in which the Bees are a sudden shake, at the same time striking it pretty forcibly, the Bees will be shaken on the cloth. Put their own hive over them immediately, raised a little on one side, that the Bees may the more easily enter; and when all are entered, place it on the stand as before. If the hive in which the Bees are, be turned bottom uppermost, and their own hive be placed over it, the Bees will immediately ascend into it, especially if the lower hive be struck on the sides to alarm them.

ART. X. *Of separating the Honey from the Wax.*

IN order to separate the honey from the wax, the combs should be laid in a place perfectly secure from the access of bees; for otherwise they would not only carry off much honey

ney, but also be extremely troublesome, by stinging the people at work. It is proper to burn cow dung or rotten hay at the doors and windows of this place; because the smell of the smoke arising from thence is so disagreeable to the Bees, that it will drive them away. If the combs are taken out of the hives before the end of autumn, there are generally young Bees in them. The parts of the combs in which these are should be laid aside, for they would give a bad taste to the honey. The bee-bread should also be separated, and both must be melted with the wax.

Before the combs are laid to drain out their honey, they should be carefully cleaned of every sort of filth, or insects. The crust with which the Bees cover the honey in them should then be pared off with a sharp thin broad knife, and the combs themselves should be divided through the middle, in such manner as to render the cells open at both ends, that the honey may flow the more freely out of them. The combs should be laid in this state on sieves, or some other contrivance which will afford the honey a free passage. It will run quite clear; and the honey thus obtained should be kept by itself, as being the purest and best. The combs which are but partly filled, and those that were full and have done running, are broken by hand, and the honey in them runs out. Some put the broken combs into a strong bag, and then use a press to squeeze the honey out of them; and even warm the broken combs with the help of fire; but neither of these last consider, that in both these ways, much of the wax passes through the bag with the honey, and that the wax being of greater value, the owner sustains a loss in that respect, besides that his honey becomes the less valuable, in proportion to its being less pure. It is true, that great part of the wax thus mixed with the honey soon rises to the surface, and may be taken off, especially after the honey is grown hard. The makers of mead need not be extremely solicitous about separating the honey so very perfectly from the wax, because by washing the wax in cold water, the honey will dissolve, and the wax being strained from it by running the water through a coarse cloth, neither bad taste nor impurity will be communicated by it to the water, which may afterwards be used for making mead. The wax that has been skimmed off the honey separated by pressure, should be washed in the same manner; because, by this means, no part of the wax will be lost.

The goodness and flavour of honey depend on the fragrance of the plants from which the Bees collect it; and hence it is that the honey of different places is held in different degrees of esti-

estimation. That which is made early in the year is also preferred to what is collected in the latter end of the season. The colour also depends on the colour of juices which the Bees collect. Thus the honey from trees is higher coloured than from flowers, and from heath darker coloured than from almost any other flower.

In order to obtain the wax in a pure state, what remains of the combs after separating the honey, together with the combs which contain bee-bread, and young bees or maggots, is put into a copper with a sufficient quantity of clean water; which is made to boil over a slow fire, and stirred frequently with a stick; when the wax is melted, it is run through bags, which are put into a press, to separate the wax perfectly. The wax runs from the press into a vessel placed underneath, with some water in it, to prevent the wax from sticking to it. What remains after the pressure may be again boiled in water, in order to obtain more wax from it; and this should be repeated by slow boilings, rather than by boiling it strongly at once. All the wax that can be possibly obtained by these means, should be put into a vessel with some water in it, and be melted. It should then be let stand as long as it remains in a fluid state, that whatever impurities are in it may settle in the water. The clean wax should then be poured off into a vessel which shall give it the form it is to remain in, as long as it runs clear, there being some water in the vessel, which will render the taking the wax out the more easy. The vessel is then carried into a place where the wax may cool gradually. It is found, that the larger the cakes of wax are, the better it keeps, and the higher price it brings; also, that the more gently it has been boiled, the better it is: for too hasty boiling renders it hard, and this increases the difficulty of bleaching it. The remaining wax should be strained through a cloth, to separate the remaining filth from it, and being again melted, is poured off as before. This second melting renders the wax much purer, and it will become more valuable to the manufacturer, because he is saved the trouble of purifying it.

ART. XI. *Directions for making of MEAD.*

ALL the writers who have hitherto treated of this subject, have given into a capital error with regard to the strength of this liquor, by directing too great a proportion of honey to be dissolved in the water. The usual practice of making it so strong as to bear an egg, is very wrong. The

liquor is thereby rendered a mere stum, and this bad quality is still increased by the long boiling generally practised. It is scarcely possible to procure honey so pure, that some bee-bread, wax, or other substance, is not mixed with it; and this cannot be perfectly separated from it, by any methods at present known, but by boiling. On this account, therefore, the boiling of mead seems indisputably necessary. In order the more effectually to separate these impurities from the liquor intended to be boiled, it is adviseable to mix some whites of eggs with it before it is put on the fire; very particular care must absolutely be taken to skim off the thick scum that rises upon it, the moment before it begins to boil, and this must be attentively continued so long as it does boil. The only intention of boiling being here to separate the impurities, and to make a perfect union of the water and the honey, both which purposes being very soon attained, it evidently appears that the boiling need be but of very short duration. This circumstance should be particularly attended to in making of Mead; because, the longer the boiling has been continued, the less will the liquor be disposed to ferment kindly. It is perhaps owing to our long boiling only, that mead, highly esteemed by most of the northern nations, has long lain under discredit in this country; a discredit from which it might probably be retrieved, if due care were taken to prepare it rightly. The common method of boiling it too much has always prevented its fermenting sufficiently to remove its luscious sweetness; whereas, were it to undergo a due fermentation, that sweetness would go off, and the liquor would acquire a fine racy flavour. Some notable house-wives have added hops to their mead. This helps to take off its sweetness; and, as the bitterness of the hop goes off, gives it a pleasant flavour. A ferment is here, as in all vinous liquors that are boiled, generally wanted, to bring on a perfect fermentation; but as the least taint in the ferment will communicate itself to the whole liquor, due care should be taken that it be very sweet and good. Mead, judiciously managed on these principles, will keep for years, and be improved by age. It may be racked, fined, and managed, in every respect as other white wines.

ART. XII. *Cuckow's-Spittle accounted for.*

THE white spume, which is found chiefly on the herb called cuckow-flower, and which is generally called cuckow-spittle, is, by Johnson and other lexicographers, called an

Exu-

Exudation. Is such a definition a just one, or is it produced by some other cause?

CUCKOW-SPITTLE is a name given to a sort of white froth or spume, very common in the spring, and first months in the summer, on the leaves of certain plants, particularly on those of the common White Field Lychnis, thence called by some Spatted Poppy. All writers upon vegetables have taken notice of this froth, though few (till of late) have understood the cause and origin of it. Many have imagined it to be an exhalation of the earth; some have esteemed it, from the name, to be the saliva of the cuckow; others the extravasated juices of the plant; and some a hardened dew. But all these are erroneous opinions; as the true account of it is, that it oweth its origin to a small insect.

There are very frequently to be seen, in the summer months, a sort of small leaping animals, called by some the Flea-Grasshoppers; because they are very small, and like a flea. These little creatures have each a pointed proboscis, by means of which they suck the juice of the plants upon which they are found. These animals lay their eggs in autumn, from which, in the spring following, the young ones are hatched; and these are at first tenderly sheltered from injuries, by a delicate and thin membrane, which maketh a sort of nympha or aurelia, having the lineaments of all the parts of the animal which is to issue from it. When this is first hatched from the egg, it is only a small white point on the leaf, no larger than the point of a needle; a few days after, it is greenish, its colour changing with the juices of the plant on which it feeds. It moveth about very swiftly, in this state, though still covered with its membrane; but till it getteth rid of that, it can neither leap nor fly.

The manner in which the little creature forms this Froth, or Toad-spittle as it is called in some places of Lincolnshire, is this: It applies its anus close to the leaf, and discharges upon it a small drop of a white viscous fluid; which drop, containing some air in it, is soon elevated into a small bubble. Before this bubble is well formed, it depositeth such another drop; and so on, till it is every way overwhelmed with a quantity of these bubbles, which form the white froth or spittle enquired after. The creature addeth to this quantity upon occasion; but never moveth from under it, till it hath got rid of its enveloping membrane, or is arrived from its nymph-state to that of the perfect animal. It throws out these globules of viscous humour, by a sort of dilation and contraction of its belly; and

and as they succeed one another, it disposeth them every way round itself with its feet.

A proof that these animals feed on the juices of the plant, while they are in this imperfect state, and covered with a froth, is this; that if one of them be placed on a leaf of mint, or any other such plant, the leaf on which they live will never grow beyond the size it was, when the animal was placed upon it; while the opposite leaf will acquire its full dimensions.

When the animal hath quitted its nymph-state, it makes no more froth, but leaves that under which it had lived, and taketh its course freely about the plant, leaping and flying in the manner described at the beginning of this paper.

ART. XIV. *On preparing Wood-Land for Corn and Tillage.*

Mr. SYLVAN,

A Wild uncultivated country, over-run with wood, will, when properly cleared, according to the nature of the land, pay as well for cultivation as any other not before subjected to that inconvenience. Great care and pains are necessary to clear the land from the roots, which lie in different directions, and obstruct the progress of the plough. In a wide country, where wood is too plentiful, and no advantage can be made of it at market for sale, the most ready method to remove the obstructing evil will be to cut down all the trees, and underwood, and burn it on the spot; this would produce from the ashes a very rich manure, and the grubbing up the roots would well mix the manure with the earth, and produce a proper food for future vegetation.

But in this country especially, wood is of too valuable a nature to be even wasted, much less totally destroyed; every stick is therefore to be preserved; and the prudent owner will certainly take care at what time he cuts his timber, oak, ash, or copse wood in winter, while the sap is down; after the wood is cut down to the earth, the earth must be opened, and the roots carefully removed; the trimming up of the earth will incorporate the upper layer of earth with the under, and form a kind of compost; a small quantity of lime will be now very proper to throw over it; or, where chalk can be obtained, that will be still better; this will correct the sourness of the soil, which it has contracted from the long absence of the rays of the sun, and render it more disposed to nourish the plants of corn. The luxuriance of this kind of soil, at first, will render particular caution necessary in feeding the land;

land; a vast bulk of straw will be generally produced, but, the heartiness of the land not being equal to the stimulus arising from its freshness, little corn; therefore it will be best to obtain a crop of black oats, or, if the land be tolerably clean and firm, a crop of beans first of all, as least liable to be injured by any property of one kind or the other. After these crops, a complete winter and summer fallow (when indeed the chalk is best laid on) will prepare it for turnips, or any course of crops you please. A dressing of wood ashes, especially those brought dry from a lime kiln, will be a very proper dressing for the land in the summer following, and establish the property of the soil for several years to come. T. L.

ART. XV. *Useful Receipts.*

A Cure for the Gout.

A Gentleman, who has been long afflicted with the gout in his head and stomach, hearing of Sutton's method of treating the small-pox, was determined to try a similar remedy, therefore, when he had the complaint in his stomach, he drank Ice-water, and that drove it immediately to his feet; and when he had it in his head, he thereto applied cold wet cloths, which instantly removed it: he thereupon threw off his wrappers of flannel, and got on horseback, or into a coach, and walked greatly, as soon as he was able.

For the Cure of Warts.

If the person gets some strong soap lees, that has not been used, and applies it often to the warts, it will certainly cure them, as it has been tried.

To get Creases and Wrinkles from Parchments.

Smear lightly over the creases and wrinkles some paste, such as is used by bookbinders; then press the places that are crumpled and creased, with a smooth folding-stick, on the blank or back side of the parchment, placing first several sheets of soft and smooth paper underneath. Then, with a linen cloth, a little moistened with water, wipe the paste all off, and place two or three sheets of the like paper on the side that was pasted, and pass a hot flat iron, used for ironing linen, over the whole, pressing it slowly and forcibly. When this is done, press the whole in a bookbinder's standing-press, or a napkin-press.

ART. XVI.

ART. XVI. List of the Fairs in England and Wales, in the Month of February.

2. **R**EADING, St. Blazey, Ermington, Evesham, Farringdon, Lifton, Lyme, King's Lynn, Poulton, Rudland, Saltash, Wymondham. 3. Bath, Dereham, 5. Leighton Buzard, Llannerchymeadd, Plymouth, Pontefract. 7. Chapel, St. Silim. 9. Llandaff. 11. Llandysell. 13. Ashborne, Beaconsfield, Beaumaris, Biggleswade, Budworth, Camrass, Cardigan, Devizes, Dorchester, (Dorsetshire) Godalming, Hambledon, East Looe, Leominster, Maidstone, Mold, Northallerton. 14. Biddeford, Brandon, Bromley, Flint, Frampton, Headen, Slaidburn, Tutbury. 18. Long-Preston. 19. Weldon. 20. Bingham, Northampton. 21. Bingham. 24. Cambron, Eglysfach, Frome, Ireby, Pocklington, Stoke, (Suffolk) Walsall. 25. Ashbrittle, Burnham, (Bucks) Carnarvon, Feverham, Llanerillo, Llanfechell, Matlock, Oundie, Plympton. 26. Adwalton. 28. Chesterfield.

Moveable Fairs in the Month of February.

First Wednesday, at St. Stephens. Wednesday before Candlemas the 2d, at Leek. Tuesday after the 2d, at Hereford. Saturday before the 11th, at Howey. Saturday after the 13th, at Pontefract, South Moulton. Tuesday before the 5th, at Higham Ferrers. Monday before Old Candlemas-day the 13th, at Doncaster. Second Tuesday, at Chirk. Second Friday, at Leybourn. Tuesday before the 13th, at Stamford. Thursday before the 13th, at Chapel-in-le-Firth. Friday before the 13th, at Bishop's-Cattle. Saturday after the 13th, at South-Moulton. Thursday before the 14th, at Beverley. Tuesday before the 15th, at Egton. Seven days before St. Matthias Feb. 24, at Pocklington. Wednesday after the 25th, at Brackley. Wednesday before the 28th, at Barnsley. Thursday before the 28th, at Penniston. Last Thursday, at Chester, Teignmouth. Last Friday, at Ruabon.



T H E
FARMER'S MAGAZINE.

F E B R U A R Y, 1780.

A DISSERTATION *on the Progress and present State*
AGRICULTURE. [Continued.]

T U R K E Y I N A S I A.

TURKEY in ASIA is situated between the twenty-seventh and forty-fifth degrees of east longitude, and between the twenty-eighth and forty-fifth of north latitude. It is about a thousand miles in length, and eight hundred in breadth. It is bounded by the Black sea and Circassia, on the north, by Persia on the east, by Arabia and the Levant sea, on the south, and by the Archipelago, the Hellespont, and Propontis, which separate it from Europe, on the west.

Divisions.	Subdivisions.	Chief Towns.
The eastern provinces are,	1. Eyraco Arabic, or Chaldea,	{ Bassora and Bagdat.
	2. Diarbic, or Mesopotamia,	{ Diarbec, Orfa, and Mousul.
	3. Curdistan, or Assyria,	{ Nineveh, and Betlis.
	4. Turcomania, or Armenia,	{ Erzerum, and Van.
	5. Georgia, including Mengrelia & Imarette, and part of Circassia,	{ Amarchia, & Gonie.

Divisions.	Subdivisions.	Chief Towns.
Natolia, or the Lesser Asia, on the west.	1. Natolia Proper,	{ Bursa, Nice, Smyrna, and Ephesus.
	2. Amasia,	{ Amasia, Trapezond, and Sinope.
	3. Aladulia,	Ajazzo, and Marat.
	4. Caramania,	Satalia, and Teraffo.
East of the Levant sea.	{ Syria with Palestine, or the Holy Land,	{ Aleppo Antioch, Damascus, Tyre, Sidon
		{ Tripoli, Scanderon, & Jerusalem.

The climate is in general moderate, the air serene, and the seasons regular; but the inhabitants are frequently visited by the plague, which proves the more fatal, as they take no precaution to prevent being infected. Their firm belief in predestination is indeed the cause of this negligence, which renders this dreadful scourge of mankind doubly severe.

The soil in this part of Asia is naturally rich and fertile, but, for want of culture, does not produce half the corn and other grain it would otherwise do. Husbandry is chiefly carried on by the Greeks, and Armenian Christians, the Turks being too proud and indolent to attend to cultivation.

The Turkish horses are inferior only to the Arabian, but the inhabitants generally make use of camels for travelling, and carrying burdens; that animal, besides the advantage of strength, being formed by nature to travel an amazing distance without either provender or water, particularly the latter. Oxen are generally used in tillage. Buffalos are found in several parts of Turkey, the flesh of which may be purchased at an easy rate, but it is very bad, nor is the beef much better. Vast flocks of sheep are fed all over the country, but particularly in the province of Lyaconia, where they are mostly of the Syrian kind. The flesh of these sheep has an exquisite taste, and their tails are exceeding long and thick, some of them having been known to weigh thirty pounds. Innumerable herds of goats are likewise kept here, especially in Pamphylia; the hair of this animal is of infinite use in the manufacture of their fine camblets, and great quantities of it are exported to Europe. The kids are esteemed delicate eating, surpassing both in sweetness and flavour those of Europe.

Some of the birds in Turkey are of an extraordinary size, particularly the Ostrich, but these are not very common. There is great plenty of wild fowl, and the island of Cyprus produces a bird, about the size of a lark, great numbers of which

which are caught in the months of September and October; when being pickled down in barrels, many thousands of them are sent annually to Venice, where they fetch a very good price.

Most of the rivers abound in fish, particularly salmon and carp, of an amazing size: but the fish on their sea-coasts are esteemed far more delicate in their kind, viz. turbot, roach, soles, roaches, pilchers, herrings, oylers, tunnies, &c.

That small part of the country which is cultivated, though but indifferently, yields excellent corn of various kinds; cotton, all kinds of herbs, and garden-stuff in the greatest perfection, particularly asparagus, which is often as large as a man's leg; grapes of a prodigious size, from which the inhabitants make delicious wine; oranges, lemons, citrons, olives, figs, dates, coffee, rhubarb, balsam, opium, myrrh, frankincense, gall-nuts, together with many other valuable drugs, and rich gums. Mulberry-trees are raised here in great numbers for the subsistence of the silk-worms, and great quantities of that commodity are annually produced.

The fertile parts of Asia have always excited the attention of the inhabitants of a still more sterile soil, and, at the same time, rendered its own people at once luxurious and effeminate. Hence it has been the fate of these delightful countries to be often conquered, or laid waste, by the more hardy and warlike natives of the north; especially by those of that vast country called Scythia by the antients, and Tartary by the moderns. The Turks, or Turkomans, one of the tribes of the wandering Tartars, after being long resident as body guards in the courts of the Saracens, embraced the religion of Mahomet, and acted for some years as mercenaries in the armies of contending princes. Enured to war, and nurtured in slaughter, they separated themselves from the Saracen armies, and commenced conquerors for themselves. At first their incursions were confined to the countries bordering on the Caspian sea; but by degrees, and under various leaders, they extended their conquests to the Streights of the Dardanelles. They now became celebrated for their courage and impetuosity in war, and were employed as mercenaries in the armies of Persia. Proud of the glory they had obtained, and envying the riches and fertile possessions of the Persians, they separated from the forces of the sophi, and made themselves masters of that empire. But the bounds of Persia, however ample, were not sufficient to gratify the ambition of the Turks; they continued their incursions into the neighbouring territories of

the Grecian emperors, and being commanded by able generals, thier inroads were often successful. Bound by their religion to make converts to Mahometism, they were never without what they thought a sufficient pretence for ravaging the dominions of the Christians. Othman, one of the greatest generals of that age, led the Turks into the Lesser Asia; and, about the year 1347, made himself master of Nice, and Prusa in Bithynia. Convinced that conquests are of no real use to a troop of wanderers like the Turks, Othman made Prusa the capital of his dominions, and formed them into a nation. Hence the Turks are often called Othmans, from that celebrated leader. A race of the most warlike princes mentioned in history succeeded Othman. They greatly extended the bounds of the Turkish empire; and, about the year 1357, crossed the Hellespont into Europe, where Amurath made Adrianople the seat of his empire. Grown insolent by success, and tyrannical by power, Bajazet I. not only defeated the Greek emperor Sigismund, and laid siege to Constantinople, but even made incursions into the territories of the Saracens. Tamerlane the Great, provoked at the haughty insolence of Bajazet, and penetrated with the cruelties of that unfeeling tyrant, declared war against him. A decisive battle was fought between those rival conquerors on the very plain where Pompey defeated the army of Mithridates, in which Bajazet's forces were cut to pieces, and he himself taken prisoner. This was a dreadful blow to the Othmans; but the descendants of Tamerlane, by declaring war against one another, gave the Turks an opportunity of recovering the prodigious loss they had sustained by the Saracens. They again turned their arms against the Christians with success, and reduced great part of the dominions of the Greek emperor. Their progress was indeed stopped by the Hungarians and Venetians; but they continued their invasions, and gradually reduced the territories of the emperor. At last, in the year 1453, Mahomet II. took Constantinople. That city was founded about ten centuries before by Constantine the Great, and had from that period been the capital of the eastern empire. Luxury and effeminacy had rendered the army of the emperor contemptible; while intestine divisions prevented the whole force of the Greeks from being properly exerted. The feuds that had long subsisted between the churches of Constantinople and Rome, hastened its destruction, and greatly contributed to place a Turkish turban on the great altar of St. Sophia.

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The conquest of the capital was followed by the submission of all Greece, which gave the Turks a considerable weight in the political balance of Europe. And as the Infidels, when they extended their conquests, did not exterminate the inhabitants, their dominions were still full of people; so that the Greeks enjoyed their own religion, though under the most grievous oppressions.

Mahomet paid the debt of nature in 1481, and was succeeded on the Othman throne by Bajazet II. That prince carried on a war against the Hungarians and Venetians, as well as against the Persians and Egyptians; but being at last rendered indolent by the gout, his second son, Selim, procured him to be poisoned by a Jew physician.

Persuaded that he could never possess the throne in peace while any other prince of the Othman race subsisted, he pursued the barbarous policy of the East, and caused them all to be strangled. He continued the war against the sopher of Persia and the prince of Mount Taurus, and defeated their forces; but finding himself unable to penetrate into Persia, he turned his arms against Egypt, which, after many bloody battles, he subdued. He was also successful in the Lesser Asia, where he made himself master of Aleppo, Damascus, Gaza, and several other places.

Selim died in 1520, and was succeeded by Soliman the Magnificent, the greatest prince that ever filled the throne of Othman. In the beginning of his reign the most fatal differences subsisted between the Christian powers, and the progress of the Infidels seemed to be forgotten. Animated with glory, and always desirous of increasing the power of the Othmans, Soliman availed himself of these dissensions, took the island of Rhodes, driving from thence the knights of St. John of Jerusalem, who retired to Malta, an island given them by the emperor Charles V. From this period till the day of his death, the reign of Soliman was one continued series of wars with the Christian powers, in which he was in general successful; but miscarried in an attempt he made to take the island of Malta.

Soliman dying in 1566, was succeeded by his son, Selim II. This prince continued the wars began by his father against the Christians, but without his good fortune. The Turkish fleet, which was now very powerful, was totally defeated by the Christians, in the battle of Lepanto. This blow almost annihilated the Turkish navy, and had the victory been properly pursued, Selim had tottered on his throne. But differences
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and jealousies prevailing among the Christians, the panic of the Turks subsided, they soon recovered their spirits, and their army again became formidable; but their marine has never since been able to face that of the Christians.

Selim died in 1575, and was succeeded by his son Amurath III. who carried on a successful war against the Persians, and obliged them to cede Tauris, Teflis, and many other cities to the Turks. He was also fortunate in his wars against the Hungarians, and made himself master of the fortress of Raab. His whole reign was indeed a continual war, the operations of which were various; sometimes fortune attended the Othman standards, and sometimes those of the enemy. After a reign of eighteen years, Amurath paid the debt of nature, and his son Mahomet III. ascended the Turkish throne.

The most memorable transactions of the reign of this prince are his cruelties. At his accession to the throne, he caused nineteen of his brothers to be strangled: and as ten of his father's concubines were supposed to be pregnant, he caused these unhappy victims of his jealousy to be thrown into the sea. But though he waded to the throne through a sea of blood, he did not long enjoy it: He died of the plague in the year 1604.

Achmet succeeded to the Turkish throne on the death of his brother, and carried on an unsuccessful war against the Persians; but though his army was defeated in Asia, and several towns taken from him; yet his forces in Hungary were victorious, and obliged the Austrians to sign a peace in 1606, by which Achmet was allowed to retain all the conquests he had made. Soon after this peace, Achmet died, and was succeeded by his son Osman, then only sixteen years of age. He was a prince of great hopes, and seemed formed for governing a turbulent people; but being unsuccessful in his wars against Poland, he was put to death by the Janizaries, whose power he intended to have reduced. He was succeeded by Morad IV. who, after a long contest with the Persians, made himself master of the city of Bagdad. His brother Ibrahim succeeded him on the Othman throne in 1640, but being a worthless inactive prince, he was strangled in the seraglio by the Janizaries in 1648.

Mahomet IV. succeeded Ibrahim, and carried on a long war against the Venetians. During his reign, Candy was taken by the Turks, after a siege of thirty years, and the loss of 180,000 men. A bloody war succeeded between the Turks and Imperialists, in which the former were so successful, that they

they laid siege to Vienna; but were forced to raise it with great loss, by John Sobieski, king of Poland. This misfortune caused a ferment in Constantinople, Mahomet was shut up in prison, and his brother Soliman II. placed upon the throne.

The standards of Soliman were equally unfortunate, nor was his brother Achmet II. more successful: the Turks were beaten in almost every action, and victory seemed to have totally deserted the Othoman forces. Persuaded that many of the late misfortunes were owing to the want of abilities in the Turkish generals, Mustapha II. who mounted the throne in 1696, headed his armies in person. But he was soon convinced that his opinion was too precipitately formed; the celebrated prince Eugene, who then commanded the Imperial armies, totally defeated him, and a peace was concluded between the Imperialists and Turks in the year 1699. This defeat terminated the reign of Mustapha; he was deposed, his musti beheaded, and his brother Achmet III. placed upon the throne. This prince was more successful; he gave shelter at Bender to Charles XII. and terminated a successful war against the Russians by a peace concluded at Pruth. He also declared war against the Venetians; but the numerous armies he levied for attacking the territories of that republic alarmed all Europe, so that the scene of action was translated to Hungary. Eugene then commanded the Imperial army, and gave the Turks so many repeated defeats, that Achmet was forced to conclude an inglorious peace at Passarowitz, in 1718. Nor were the Turkish armies more successful in Asia; they were defeated by Kouli Khan, who had seized the throne of Persia. Enraged at these repeated misfortunes, and alarmed at the progress of the Persians, the populace demanded the heads of the vizir, chief admiral, and the secretary. These were accordingly struck off; but even this sacrifice was not sufficient to appease the clamours of the people, Achmet himself was deposed, and Mahomet V. advanced to the throne.

This total change in the government did not however retaliate victory to the standards of Othman. Mahomet was as unsuccessful as his predecessor, and at last obliged to acknowledge the usurper Kouli Khan as sopher of Persia. The war being thus terminated in Asia, Mahomet turned his arms against the Imperialists and Russians; he was victorious in several actions with the former; Eugene was dead, and there was no other general of equal talents to supply his place: but his forces were not a match for the latter. Defeat succeeded defeat, and the

the progress of the Russians was so rapid, that Constantinople itself was threatened with a siege. Reduced to this extremity, a hasty peace was concluded with the emperor, and soon after another with the Russians, both disadvantageous to the Turks.

Mahomet died in 1754. He was succeeded by his brother, Osman III. who died in 1757, and was succeeded by his brother Mustapha III. who died on the 21st of January, 1774, whilst engaged in an unsuccessful war with the Russians, which was concluded on the 21st of July, 1774, a few months after the accession of the present grand signior Achmet IV. The late emperor, Mustapha III. left a son, then only in his 13th year; but as he was too young to manage the reins of government in the then critical situation of the Turkish affairs, Mustapha appointed his brother, the present emperor, to succeed him in the throne; and to this prince, under the strongest terms of recommendation, he confided the care of his infant son.

The perseverance of the Turks, supplied by their numerous Asiatic armies, and their implicit submission to their officers, rather than any excellency in military discipline or courage in war, have been the great springs of those successes which have rendered their empire so formidable. The extension, as well as duration of their empire, may indeed be in some measure owing to the military institution of the Janizaries, a corps generally composed of the children of such Christian parents as could not pay the taxes. These being collected together, were formed to the exercise of arms under the eyes of their officers in the seraglio. They were generally in number about 40,000; and so excellent was their discipline, that they were deemed to be invincible: and they still constitute the flower of the Turkish armies. After all, we must consider the political state of Europe, and the jealousies that subsist among its princes, as the surest basis of this empire, and the principal reason why the finest provinces in the world are suffered to remain in the possession of these haughty infidels.

The grand signior is one of the most despotic princes upon earth, having an absolute power of life and death over all his subjects; of the justice of which they are so entirely persuaded, that they never make any resistance, but submit with mildness to the first order he issues for taking away their goods, or even their lives. This excess of obedience is taught them by their religion; and, labouring under the force of this prejudice, even the chief officers of the empire conclude it to be their highest good fortune and glory, to end their days by the hand

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or command of their sovereign. The whole extent of the Turkish empire, lands, and houses, are his property, and at his sole disposal, except lands annexed to the church; which is a law that the Jews and Christians avail themselves of, to secure the enjoyment of their estates to posterity; and so sacred and inviolable has it been held, that there is no instance recorded in history of a sultan's having even attempted to violate it. Many of the Turks hold their lands by a kind of military tenure, being obliged to maintain horse and men, always in readiness, against the grand signior shall call them forth to serve in the wars. At his inauguration this prince obliges himself to govern by the Mahometan law; which is in fact no restriction at all, for this very law stiles him the mouth and the interpreter of it, and endows him with a power to alter and annul the most fixed and settled rules, or at least to dispense with them, when they prove an obstacle to his government. But, notwithstanding this despotic power, if he acts contrary to the humours of the people, particularly the mutinous Janizaries, he is in danger of being deposed, and often put to death; therefore, upon the least suggestion of the disaffection or misconduct of his ministers, he causes them to be murdered, or at least disgraced; and frequently saves himself from the general fury, by throwing the whole blame of any male-administration upon the grand vizir, and sacrificing him to the public resentment.

The great officers of state in Turkey are the grand vizir, or prime minister; the captain-basha, or admiral; the mufti, or high-priest; the vizirs of the bench, or bashas of three tails, so denominated from three horses tails being carried before them when they march; these sit in the divan or courts of justice with the mufti; the kadilaskiers, or chief justices of provinces; the beglerbegs, or viceroys; the bashas, or governors of towns and districts under the beglerbegs; the kaimacan, or governor of Constantinople; the grand vizir has a deputy, who is likewise stiled kaimacan; the reis-effendi, or lord-chancellor and secretary of state; and the tefterder, or lord-treasurer. There are likewise the aga of the Janizaries, the aga of the Spahis, the aga of the Siluds, and some others. The chief officers of the seraglio are, the kishlar aga, who is superintendant of the women, and has the command of all the black eunuchs; and the capi aga, who has the command of all the white eunuchs.

The officers in these great posts are composed chiefly of the children of Christians or Renegadoes. The most beautiful,
VOL. V. F well-made,

well-made, and sprightly of these, while exceeding young, are presented to the grand signior; and such as he approves are admitted into the seraglios, and educated under the appellation of Ichoglans. Being circumcised, they are first taught silence, and a modest humble behaviour; and as they advance in years, they are instructed in the Mahometan religion, the Turkish, Persian, and Arabic languages. When fit for manly exercises, they are taught the use of arms, and such other sciences as may render them serviceable to the state; but none are preferred before they attain the age of 40. Besides these, there are children in the seraglios, who are trained up for inferior employments. Among the sultan's attendants are a number of mutes and dwarfs, the former of which converse by signs, and the latter divert the court by their buffoonery.

The revenues of the grand signior are immense, but it is impossible to ascertain the exact sum. They arise from the customs, the produce of demesne lands, the capitation or poll tax, imposed on every subject of the empire who is not a Mahometan, the annual tributes paid by the cham of the Crim Tartars, the princes of Moldavia, Walachia, the little republic of Ragusa, and part of Mingrelia, together with half a million annually from Egypt. All these, however, are inconsiderable when compared to the vast sums extorted by the sultan from his viceroy and great officers of state, under the plausible appellation of presents. He also raises vast sums by the confiscations of the estates and effects of his ministers, whom, if they happen to be immoderately rich, he frequently puts to death, under pretence of misconduct. He is likewise heir to all his officers and ministers; who, after distressing the people they are appointed to govern, in order to amass prodigious wealth, are obliged to leave it at his disposal when they die; and it is seldom that generosity prompts him to bestow any considerable part on the relations of the deceased.

The current coin of Turkey consists of gold and silver, but there is no copper or brass money. The gold coins are the altines or ducats, and the zechinos. The former are worth about seven shillings and six-pence, and the latter about nine shillings. The silver coins are, the asper, worth three halfpence; the para, worth four-pence halfpenny; the grosh, about three-pence; the krip, about eleven-pence; and the solga, about two shillings and two-pence farthing. The gold and silver of both countries go for their full value. A kize is a bag of 15,000 ducats, a purse is worth 500,000 crowns, and of these the sultan makes his common presents; but those he presents to his sultanas or favourites, are called golden purses, and contain 30,000 crowns.

[To be continued.]

ART.

ART. II. A MODERN UNIVERSAL TABLE. *The most copious and authentic that ever was published, of the present State of the real and imaginary Monies of the World, in Europe, Asia, Africa, and America. (Continued.)*

[From Guthrie's New System of Geography, 4to.]

Northern Parts of EUROPE.

BRANDENBURGH and POMERANIA.

Berlin, Potsdam, &c. Stetin, &c.

			£.	s.	d.
* A Denier =	-	-	0	0	0 $\frac{2}{3}$
9 Deniers =	a Polcen	-	0	0	0 $\frac{7}{8}$
18 Deniers =	a Grosh	-	0	0	0 $\frac{7}{8}$
8 Polchens =	an Abras	-	0	0	0 $\frac{7}{8}$
20 Groshen =	* a Marc	-	0	0	9 $\frac{1}{3}$
30 Groshen =	a Florin	-	0	1	2
90 Groshen =	* a Rix-dollar	-	0	3	6
108 Groshen =	an Albertus	-	0	4	2
8 Florins =	a Ducat	-	0	9	4

C O L O G N.

Mentz, Triers, Liege, Munich, Munster, Paderbourn, &c.

A Dute =	-	-	0	0	0 $\frac{7}{8}$
3 Dutes =	a Cruitzer	-	0	0	0 $\frac{3}{4}$
2 Cruitzers =	an Albus	-	0	0	0 $\frac{3}{4}$
8 Dutes =	a Stiver	-	0	0	0 $\frac{7}{8}$
3 Stivers =	a Plapert	-	0	0	2 $\frac{1}{8}$
4 Plaperts =	a Copstuck	-	0	0	8 $\frac{1}{2}$
40 Stivers =	a Guilder	-	0	2	4
2 Guilders =	a Hard Dollar	-	0	4	8
4 Guilders =	a Ducat	-	0	9	4

BOHEMIA, SILESIA, and HUNGARY.

Prague, Breslau, Presburg, &c.

A Fening =	-	-	0	0	0 $\frac{7}{8}$
3 Fenings =	a Dreyer	-	0	0	0 $\frac{3}{4}$
3 Fenings =	a Grosh	-	0	0	0 $\frac{7}{8}$
4 Fenings =	a Cruitzer	-	0	0	0 $\frac{7}{8}$
2 Cruitzers =	a White Grosh	-	0	0	0 $\frac{1}{2}$
60 Cruitzers =	a Gould	-	0	2	4
90 Cruitzers =	* a Rix dollar	-	0	3	6
2 Goulds =	a Hard Dollar	-	0	4	8
4 Goulds =	a Ducat	-	0	9	4

The FARMER'S MAGAZINE,

AUSTRIA and SWABIA.

Vienna, Trieste, &c. Augsburg, Blenheim, &c.

			£.	s.	d.
A Fening	=	-	0	0	0 $\frac{7}{8}$
2 Fenings	=	a Dreyer	0	0	0 $\frac{7}{8}$
4 Fenings	=	a Cruitzer	0	0	0 $\frac{7}{8}$
14 Fenings	=	a Grosh	0	0	1 $\frac{13}{16}$
4 Cruitzers	=	a Batzen	0	0	1 $\frac{13}{16}$
15 Batzen	=	a Gould	0	2	4
90 Cruitzers	=	* a Rix-dollar	0	3	6
30 Batzen	=	a Specie-dollar	0	4	8
60 Batzen	=	a Ducat	0	9	4

F R A N C O N I A.

Francfort, Nuremberg, Dettingen, &c.

A Fening	=	-	0	0	0 $\frac{7}{8}$
4 Fenings	=	a Cruitzer	0	0	0 $\frac{7}{8}$
3 Cruitzers	=	a Keyser Grosh	0	0	1 $\frac{2}{3}$
4 Cruitzers	=	a Batzen	0	0	1 $\frac{13}{16}$
15 Cruitzers	=	an Ort Gould	0	0	7
60 Cruitzers	=	a Gould	0	2	4
90 Cruitzers	=	* a Rix-dollar	0	3	6
2 Goulds	=	a Hard Dollar	0	4	8
240 Cruitzers	=	a Ducat	0	9	4

POLAND and PRUSSIA.

Cracow, Warsaw, &c. Dantzic, Koningberg, &c.

A Shelon	=	-	0	0	0 $\frac{7}{8}$
3 Shelons	=	a Grosh	0	0	0 $\frac{7}{8}$
5 Groshen	=	a Coustic	0	0	2 $\frac{1}{2}$
3 Coustics	=	a Tinfé	0	0	7
18 Groshen	=	an Ort	0	0	8 $\frac{2}{3}$
30 Groshen	=	a Florin	0	1	2
90 Groshen	=	* a Rix-dollar	0	3	6
8 Florins	=	a Ducat	0	9	4
5 Rix-dollars	=	a Frederic d'Or	0	17	6

L I V O N I A.

Riga, Revel, Narva, &c.

A Blacken	=	-	0	0	0 $\frac{7}{8}$
6 Blackens	=	a Grosh	0	0	0 $\frac{7}{8}$
9 Blackens	=	a Vording	0	0	0 $\frac{7}{8}$
2 Groshen	=	a Whiten	0	0	0 $\frac{13}{16}$
					6 Groshen

			£.	s.	d.
6 Groschen	=	a Marc	0	0	2 $\frac{1}{2}$
30 Groschen	=	a Florin	0	1	2
90 Groschen	=	* a Rix-dollar	0	3	6
108 Groschen	=	an Albertus	0	4	2 $\frac{1}{4}$
64 Whitens	=	a Copper-plate Dollar	0	5	0

DENMARK, ZEALAND, and NORWAY.

Copenhagen, Sound, &c. Bergen, Drontheim, &c.

A Skilling	=	-	0	0	0 $\frac{1}{16}$
6 Skillings	=	a Duggen	0	0	3 $\frac{1}{8}$
16 Skillings	=	* a Marc	0	0	9
30 Skillings	=	a Rix-marc	0	0	11 $\frac{1}{4}$
24 Skillings	=	a Rix-ort	0	1	1 $\frac{1}{2}$
4 Marcs	=	a Crown	0	3	0
6 Marcs	=	a Rix-dollar	0	4	6
11 Marcs	=	a Ducat	0	8	3
14 Marcs	=	a Hatt Ducat	0	10	6

SWEDEN and LAPLAND.

Stockholm, Upsal, &c. Thors, &c.

* A Runstiek	=	-	0	0	0 $\frac{1}{16}$
2 Runstieks	=	a Stiver	0	0	0 $\frac{1}{16}$
8 Runstieks	=	a Copper Marc	0	0	1 $\frac{1}{16}$
3 Copper Marcs	=	a Silver Marc	0	0	4 $\frac{1}{16}$
4 Copper Marcs	=	a Copper Dollar	0	0	6 $\frac{1}{16}$
9 Copper Marcs	=	a Caroline	0	1	2 $\frac{1}{16}$
3 Copper Dollars	=	a Silver Dollar	0	1	6 $\frac{1}{16}$
3 Silver Dollars	=	a Rix-dollar	0	4	8
2 Rix-dollars	=	a Ducat	0	9	4

RUSSIA and MOSCOVY.

Peterburgh, Archangel, &c. Moscow, &c.

A Polusca	=	-	0	0	0 $\frac{1}{16}$
2 Poluscas	=	a Denusca	0	0	0 $\frac{1}{16}$
4 Denuscas	=	* a Copec	0	0	0 $\frac{1}{16}$
3 Copecs	=	an Altin	0	0	1 $\frac{1}{16}$
10 Copecs	=	a Grievener	0	0	5 $\frac{1}{16}$
25 Copecs	=	a Polpotin	0	1	1 $\frac{1}{16}$
50 Copecs	=	a Pokin	0	2	3
100 Copecs	=	a Ruble	0	4	6
2 Rubles	=	a Xervonitz	0	9	0

ART. III. *On poisonous Plants.*

Mr. SYLVAN,

THE plants in England which are generally found to be poisonons are few indeed in number, but being scattered pretty much about are capable of doing much injury. To secure as much as possible, farmers, &c. from their ill effects, I beg you will insert the following observations as they occurred to a constant reader.

R. B.

Of Henbane.—Henbane is a large spreading plant: it is capable of doing great mischief; and unhappily for the farmer, it is not confined to woods or remote places, but grows naturally upon ditch-banks, and is common almost every where.

Nature which has thrown it thus in the way of mankind, yet has stamped so strong a mark of its qualities in every part and given notices of its hurtful properties so evidently to all the senses, that she seems to have raised a sufficient caution against any danger.

It differs from all other plants in the form and hue of its leaves: its flowers are of a deadly dismal colour; and the whole plant forbidding in its aspect. The eye marks it for a poison; and when offered to the other senses, they answer in the same language. Its taste is filthy and nauseous, but this cannot easily come into tryal; for its smell, which will be perceived first, is offensive and forbidding.

By this dismal look, and this forbidding smell, has nature warned men to beware of Henbane, though they see it frequent about their dwellings: we shall prevent the possibility of mistaking it for any other plant, by adding the description of its several parts.

The root is thick, long, and irregular in its shape. From this rise eight or ten leaves. They are very large, long, and of a whitish or a greyish green colour. They are very deeply indented at the sides, and of a stinking filthy smell.

The stalk grows up in the midst of these, and is whitish, hard, woody, full of branches, and two feet high. The upper branches spread out very much.

Many leaves grow upon this, like those that first rise from the root: and of the same smell.

The flowers are numerous and large, but they are not conspicuous. They are hollow, like a bell, and are of a dead colour, veined in a very curious manner with purple.

After these come short thick seed vessels, which are full of small brown seeds.

Every

Every part of this plant is poisonous, and it destroys people by throwing them into drowsiness, like a lethargy, with convulsions.

Cattle will sometimes eat the young leaves of it; and this throws them into the sleepy evil: if they have eaten a great deal, no medicines can recover them. Hogs will grub up the root, and it affects them in the same manner.

Chicken will pick out the seeds; and if they eat a large quantity, they die by it. This is the reason of its name *Henbane*.

These are sufficient reasons why the farmer should let none of it grow near his fields; but there is yet greater cause for tearing it up in his yards where it is very common.

There have been instances of country fellows eating the roots by mistake; and they have died in the most miserable manner in convulsions, and with gnashing of their teeth.

The seeds of white Henbane, which are used in medicine, are those of a different plant. This is altogether poisonous.

Of Hemlock.—This is another of those poisonous plants which nature, for reasons to us unknown, has made to grow in great abundance near our habitations.

It is not characterised like Henbane, by a peculiar forbidding aspect; yet it is a gloomy looking plant, and by no means inviting to the eye. Its smell also is heavy, and seems to the most ignorant person unwholesome.

There is a sort of Hemlock which grows of itself in gardens, and resembles parsley; but this, though a very unwholesome plant, is not the poisonous kind. That is the large kind which grows wild in hedges; and it is sufficiently distinguished by its height, its aspect, and its painted stalk, to prevent any mistake to the farmer, who shall have observed its description and figure.

The root is white, thick, long, and of an unpleasant smell.

The leaves that grow from this are very large, two foot broad, but divided into innumerable small parts, in a regular and beautiful manner; and they are of a dull and blackish green.

The stalk grows up in the midst of these, and it is two yards high, and as thick as a child's arm. It is of a deep dingy green, but painted in a most surprising and beautiful manner, with purple, so that it resembles the speckled skin of a snake. The flowers are white, they are small singly, but they stand in thick and large clusters, at the tops of the branches. The seeds are roundish, of a pale green colour, and striated. Two come after every flower.

There

There are several other kinds of this, beside that first mentioned, and the present; especially a very singular one with a thick stalk, that grows in waters. They are all of a poisonous quality; but this common hedge kind worst of all.

The stalks are the most poisonous part; and next to them the seeds. Some pretend the root has scarce any bad qualities; but this is not confirmed upon sufficient experience.

The Athenians extracted the juice of Hemlock from the lower parts of the stalks before the plant rose up to flower; and with this poison they executed criminals instead of hanging. Socrates died by this dose.

The knowledge of the poisonous qualities of Hemlock is so common, that we do not hear of any bad effect among our own species who are guarded against it: but many of those diseases of cattle which perplex the farmer and the farrier, and at length end in the creature's death, are the effect of eating the young shoots of this plant. Some birds feed upon the seeds without hurt; but they are fatal to other creatures.

Of Deadly Nightshade.—This is a plant not so common about towns and houses as the others; but wherever it is seen it should be rooted up, for it is fatal to children. Nature, which has not planted this in the way of men so much as the other two, has not been careful to mark it as those for a thing to be dreaded. On the contrary, it is an extremely beautiful plant, yet with a somewhat melancholy aspect. The root is long and thick, and it creeps under the surface of the ground. From this rise many large and broad leaves of a deep green colour, and not at all notched or divided at the edges. The stalk is round and thick, divided into many branches, and a yard high. It is full of leaves like those from the root, and toward the top has many flowers. These are large, hollow like a bell, and of a dusky purple colour. After these come berries which are large, and of a very tempting aspect; they are of a shining and jetty black, and are as big as large black cherries. They are ripe in July and August. Children are tempted to eat these, and they are always fatal. A single berry will bring on convulsions; but they seldom stop with one or two. They commonly die miserably a few hours after eating them.

Of Water Dropwort.—This is a plant, which like the former, has been fatal to many persons who have been tempted by the cleanly look to eat of it; and which the farmer should know, that he may guard against it with the utmost care. The root in this plant possesses the greatest degree of poison. It always grows
by

by waters, and is very common in most parts of the kingdom. The root is composed of several long and large pieces which resemble parsnips in shape and colour, and are of a sharp taste. The leaves that rise from these are large, and of a pale green, and they are divided into a great number of segments. The stalks rise several together, and are upright, divided into many branches, and a yard high. They have several leaves upon them like those from the root, and of the same faint colour. The flowers are small and yellowish; they grow in great tufts at the tops of the stalks, and after every one of them there come two small seeds. The roots when they are first taken up have an inviting aspect: they run out a white juice like milk when cut; and this presently after turns yellow.

Many have eat of them, and all died. We have instances of the sad effects from very early time; and within these few years the same fatal scene has been repeated. They take the same effect whether raw or boiled; and those who eat them die raving and in convulsions.

Of Dog's Mercury.—This is another of those plants which tempt the ignorant by their pleasing aspect, and are in their effects fatal. The whole herb appears very inviting; it is fresh and green at a time when every thing else is dead; and many have eat it raw or boiled, and perished by it. It is a plant common under our hedges, and on which nature has stamped no mark of caution: on the contrary, it has a very alluring look. The root is slender and long; it divides into many branches, and spreads under the surface of the ground. The stalks are round, upright, not at all branched, of a faint green, and about a foot high.

They are almost naked towards the bottom, but nearer the top there stand many leaves; these are long and notched at the edges; and they are of a very bright pleasant green. The flowers are inconsiderable. On some parts there stand spikes of a greenish colour, and on others seeds, which are as it were double. The plant is in full vigour early in spring, and its fresh, green, and wholesome look had tempted many to boil it for food. Whole families have been poisoned by it. The children have generally died; sometimes the father and mother have recovered; but in other instances all have perished together. They die in convulsions, and in the greatest agonies.

Of Herb Christopher.—This is a plant as fatal in its effects as any; but very happily it is found in few parts of this kingdom.

and there generally in woods, not far remote from dwellings. The root is long, thick, and whitish.

From this rise several large leaves, supported on long reddish foot-stalks. Each leaf is divided into many small parts, or is as it were composed of many small ones; and it is of a deep green colour. The stalk rises in the midst of these, and is round, upright, reddish, and two feet high. Several leaves grow upon this, which in all respects resemble those from the root, and are when rubbed or bruised of an unpleasing smell. The flowers stand in long clusters upon small stalks growing at the top of the plants, and from the bosoms of the leaves; they are small and white. The berries that follow these hang in the manner of bunches of currants, and they are of a shining black colour. They are ripe in Autumn.

Children who have gone out to gather blackberries have been tempted to eat these, and have in consequence died in convulsions. The plant has been from this named bane-berries. The young shoots also poison cattle.

[To be continued.]

ART. IV. *Instructions for cultivating and curing Tobacco in England.*

[From Mr. CARVER's Treatise on that Subject.]

THE best ground for raising the plant is a warm rich soil, not subject to be over-run with weeds; for from these it must be totally cleared. The soil in which it grows in Virginia, is inclining to sandy, consequently warm and light; the nearer therefore the nature of the land approaches to that, the greater probability there is of its flourishing here. The situation most preferable for a plantation is the southern declivity of a hill, or a spot that is sheltered from the blighting north winds which so frequently blow during the spring months in this island. But at the same time the plants must enjoy a free current of air; for if that be obstructed, they will not prosper.

As the tobacco plant, being an annual, is only to be raised from seed, the greatest care in purchasing it is necessary; lest by sowing such as is not good, we lose, with the expected crop, the season. The different sorts of the seed not being distinguishable from each other, nor the goodness to be ascertained by their appearance, the purchaser should apply to a person of character in that profession. In describing the manner in which the plant ought to be raised from the seed, as well as in the succeeding progress, I shall confine myself to the practice

practice of the northern colonies of America, as these are more parallel in their latitude to England.

About the middle of April, or rather sooner in a forward spring, sow the seeds in beds first prepared for the purpose, with some warm rich manure. In a cold spring, regular hot-beds would be most eligible for this purpose; and indeed the gardeners of this country are persuaded that the *Nicotiana* cannot be raised in any other way; but these are seldom to be found in common gardens; and I am convinced that if the weather is not remarkably severe, they may be reared without doors. A square yard of land, for which a small quantity of seed is sufficient, will produce above 500 plants, and allow proper space for their nurture till they are fit to transplant.

Having sown the seed in the manner directed, on the least apprehension of a frost after the plants appear, it will be necessary to spread mats over the beds, elevated from the ground by poles laid a-cross. These, however, must be removed in the morning, soon after the sun appears, that they may receive as much benefit as possible from its warmth, and from the air. In this manner proceed till the leaves have attained the size of about two inches in length, and one in breadth, which they will do in about a month, or near the middle of May. One invariable rule for their being able to bear removal is, when the fourth leaf is sprouted, and the fifth just appears. Then take the opportunity of the first rains, or gentle showers, to transplant them into such a soil and situation as before described. The land must be ploughed, or dug up with spades, as mellow and light as possible. Raise, with the hoe, small hillocks at the distance of two feet, or a little more, from each other, taking care that no hard sods or lumps are in it, and then just indent the middle of each, without dibbling the holes as for some other plants in a gentle manner from their native bed, and insert a plant gently into the center of each hillock, pressing the soil around it with your fingers, and taking the greatest care, during the operation, that you do not break off any of the leaves, which are at this time exquisitely tender. If the weather proves dry, after they are thus transplanted, they must be watered with soft water, in the same manner as usually done to coleworts, or plants of a similar kind. From this time great care must be taken to keep the ground soft, and free from weeds, by often stirring with your hoe the mould round the roots; and pruning off the dead leaves that sometimes are found near the bottom of the stalk.

The difference of this climate from that in which I have been accustomed to observe the progress of this plant, will not permit me to direct with certainty the time which is most proper to take off the top of it, to prevent it from running to seed. This knowledge can only be perfectly acquired by experience. When it has risen to upwards of two feet, it commonly begins to put forth the branches on which the flowers and seeds are produced; but as this expansion, if suffered to take place, would drain the nutriment from the leaves, and thereby lessen their size and efficacy, it becomes needful at this stage to nip off the extremity of the stalk, to prevent its growing higher. In some other climates the top is commonly cut off when the plant has fifteen leaves; if the tobacco is intended to be a little stronger than usual, this is done when it has only thirteen; and sometimes, when it is chosen to be remarkably powerful, eleven or twelve leaves only are allowed to expand. On the contrary, if the planter is desirous to have his crop very mild, he suffers it to put forth eighteen or twenty; but in this calculation the three or four lower leaves next the ground are not to be reckoned.

This is denominated, "topping the tobacco," and is much better done by the finger and thumb, than with any instrument; because the former close at the same time the pores of the plants; whereas, when it is done with the latter, the juices are in some degree exhausted. And though this might appear unimportant, yet every method that tends to give vigour to the leaves should be carefully pursued. For the same reason care must be taken to nip off the sprouts that will be continually springing up at the junction of the leaves with the stalk. This is termed 'fucking the tobacco,' and ought to be repeated as often as occasion requires.

The last, and not the least concern in the cultivation of this plant, is the destruction of the worm that nature has given it for an enemy, and which, like many other reptiles, preys on its benefactor. To destroy these, which are the only insects that molest this plant, every leaf must be carefully searched. As soon as such a wound is discovered, the cause of it, which will be found near it, from its unsubstantial texture, may be easily crushed; but the best method is to pluck it away by the horn, and then crush it. Without a constant attention to these noxious insects, a whole field of plants may be soon destroyed. This is termed 'worming the tobacco;' and as these worms are found most predominant the latter end of July, and the beginning of August, they must be particularly attended to at that season.

As

As I have just observed, that it is impossible, without experience, to point out the due time for topping the plant, so it is equally as impossible to ascertain the time it will take to ripen in this climate. That can only be known by future observations; for as it is at present only cultivated in England as an ornament to the garden, no particular attention has, I believe, been hitherto bestowed on the preservation of its leaves. The apparent signs, however, of its maturity are, that the leaves, as they approach a state of ripeness, become more corrugated or rough; and when fully ripe, appear mottled with yellowish spots on the raised parts, whilst the cavities retain their usual green colour. They are, at this time, also, thicker than they have before been, and are covered with a kind of downy velvet. If heavy rains happen at this critical period, they will wash this excrescent substance off, and thereby damage the plants. In such a case, if the frosty nights are not begun, it is proper to let them stand a few days longer, when, if the weather be moderate, they will recover this substance again. But if a frost unexpectedly happens during the night, they must be carefully examined in the morning before the sun has any influence on them; and those which are found to be covered with frosty particles, whether thoroughly ripe or not, must be cut up; for though they may not all appear to be arrived at a state of maturity, yet they cannot be far from it, and will differ but little in goodness from those that are perfectly so.

ART. V. *Description of a most effectual Method of securing Buildings against Fire, invented by Charles Lord Viscount Mahon, F. R. S.*

§ 1. **T**HE new and very simple method which I have discovered of securing every kind of building (even though constructed of timber) against all danger of fire, may very properly be divided into three parts; namely, under-flooring, extra-lathing and inter-securing, which particular methods may be applied, in part or in whole, to different buildings, according to the various circumstances attending their construction, and according to the degrees of accumulated fire, to which each of these buildings may be exposed, from the different uses to which they are meant to be appropriated.

§ 2. The method of under-flooring may be divided into two parts; viz. into single and double under-flooring.

The method of single under-flooring is as follows; a common strong lath, of about one quarter of an inch thick (either
of

of oak or fir) should be nailed against each side of every joist, and of every main timber, which supports the floor intended to be secured. Other similar laths ought then to be nailed the whole length of the joists, with their ends butting against each other; these are what we call the fillets. The top of each fillet ought to be one inch and a half below the top of the joists or timbers against which they are nailed. These fillets will then form as it were a sort of small ledge on each side of all the joists.

§ 3. When the fillets are going to be nailed on, some of the rough plaster hereafter mentioned (§ 9.) must be spread with a trowel all along that side of each of the fillets which is to lay next to the joists, in order that these fillets may be well bedded therein when they are nailed on, so that there should not be any interval between the fillets and the joists.

§ 4. A great number of any common laths (either oak or fir) must be cut nearly to the length of the width of the intervals between the joists.

Some of the rough plaster referred to above, (§ 3.) ought to be spread, with a trowel, successively upon the top of all the fillets, and along the sides of that part of the joists which is between the top of the fillets and the upper edge of the joists.

The short pieces of common laths just mentioned ought (in order to fill up the intervals between the joists that support the floor) to be laid in the contrary direction to the joists, and close together in a row, so as to touch one another, as much as the want of straightness in the laths will possibly allow, without the laths lapping over each other; their ends must rest upon the fillets spoken of above (§ 2.) and they ought to be well bedded in the rough plaster. It is not proper to use any nails to fasten down either of these short pieces of laths, or those short pieces hereafter mentioned. (§ 7.)

§ 5. These short pieces of laths ought then to be covered with one thick coat of the rough plaster spoken of hereafter (§ 9.) which should be spread all over them, and which should be brought, with a trowel, to be about level with the top of the joists, but not above them. This rough plaster in a day or two should be trowelled all over, close home to the sides of the joists; but the tops of the joists ought not to be any wise covered with it.

§ 6. The method of double-unflooring is, in the first part of it, exactly the same as the method just described. The fillets and the short pieces of laths are applied in the same manner; but the coat of rough plaster ought to be little more than half as thick as that applied in the method of single under-flooring.

§ 7. In

§ 7. In the method of double under-flooring, as fast as this coat of rough plaister is laid on, some more of the short pieces of laths, cut as above directed (§ 4.) must be laid in the intervals between the joists upon the first coat or rough plaster; and each of these short laths must be, one after the other, bedded deep and quite sound into this rough plaster while it is soft. These short pieces of laths should be laid as close as possible to each other, and in the same direction as the first layer of short laths.

§ 8. A coat of the same kind of rough plaster should then be spread over the second layer of short laths, as there was upon the first layer above described. This coat of rough plaster should (as above directed § 5, for the method of single underflooring) be trowelled level with the tops of the joists, but it ought not to rise above them. The sooner this second coat of rough plaster is spread upon the second layer of short laths just mentioned (§ 7.) the better.

What follows, as far as § 13. is common to the method of single as well as that of double under-flooring.

§ 9. Common coarse lime and hair (such as generally serves for the pricking-up-coat in plastering) may be used for all the purposes before or hereafter mentioned; but it is considerably cheaper, and even much better, in all these cases, to make use of hay instead of hair, in order to prevent the plaster work from cracking. The hay ought to be chopped to about three inches in length, but no shorter.

One measure of common rough sand, two measures of slacked lime, and three measures (but not less) of chopped hay, will prove, in general, a very good proportion, when sufficiently beat up together in the manner of common mortar. The hay must be well dragged in this kind of rough plaster, and well intermixed with it; but the hay ought never to be put in, till the two other ingredients are well beat up together with water.

This rough plaster ought never to be made thin for any work here mentioned. The stiffer it is the better, provided it be not too dry to be spread properly upon the laths.

If the flooring boards are required to be laid very soon, a fourth or a fifth part of the *quick** lime in powder, very well

* I have practised this method in an extensive work with great advantage. In three weeks this rough plaster grows perfectly dry. The rough plaster so made, may be applied at all times of the year with the greatest success. The easiest method, by much, of reducing the *quick* lime to powder is, by dropping a small quantity of water on the lime stone, a little while before the powder is intended to be used; the lime will still retain a very sufficient degree of heat.

mixed with this rough plaster just before it is used, will cause it to dry very fast.

§ 10. When the rough plaster-work between the joists has got thoroughly dry, it ought to be observed, whether or not there be any small cracks in it, particularly next to the joists. If there be any, they ought to be washed over with a brush, wet with *mortar-wash*, which will effectually close them; but there will never be any cracks at all, if the *chopped hay* and the *quick lime* be properly made use of.

§ 11. The mortar-wash I make use of is merely this. About two measures of quick lime and one measure of common sand, should be put into a pail, and should be well stirred up with water, till the water grows very thick, so as to be almost of the consistency of a thin jelly. This wash, when used, will grow dry in a few minutes.

§ 12. Before the flooring-boards are laid, a small quantity of very dry common sand should be strewed over the rough plaster-work, but not over the tops of the joists. The sand should be struck smooth with an hollow rule, which ought to be about the length of the distance from joist to joist, and of about one eighth of an inch curvature; which rule passing over the sand, in the same direction with the joists, will cause the sand to lay rather rounding in the middle of the interval between each pair of joists.

The flooring-boards may then be laid and fastened down in the usual manner; but very particular attention must be paid to the rough plaster-work and to the sand being most perfectly dry before the boards are laid, for fear of the dry-rot; of which, however, there is no kind of danger, when this kind of precaution is made use of.

§ 13. The method of *under-flooring* I have also applied, with the utmost success, to a wooden stair-case. It is made to follow the shape of the steps, but no sand is laid upon the rough plaster-work in this case.

§ 14. The method of *extra lathing* may be applied to ceiling joists, to sloping roofs, and to wooden partitions. It is simply this:

As the laths are going to be nailed on, some of the above-mentioned rough plaster ought to be spread between these laths and the joists (or other timbers) against which these laths are to be nailed. The laths ought to be nailed very close to each other.

When either of the ends of any of the laths laps over other laths, it ought to be attended to, that these ends be bedded sound in some of the same kind of rough plaster.

This

This attention is equally necessary for the second layer of laths hereafter mentioned (§ 15.)

§ 15. This first layer of laths ought to be covered with a pretty thick coat of the same rough plaster spoken of above (§ 9.) A second layer of laths ought then to be nailed on, each lath being, as it is put on, well squeezed and bedded sound into the first rough plaster. For this reason no more of this first coat of rough plaster ought to be laid on at a time than what can be immediately followed with the second layer of laths.

The laths of this second layer ought to be laid close to each other, to allow of a proper clench for the rough plaster.

The laths of the second *layer may then be plastered over with a coat of the same kind of rough plaster, or it may be plastered over in the usual manner.

§ 16. The third method, which is that of inter-securing, is very similar, in most respects, to that of under-flooring; but no sand is afterwards to be laid upon it. Inter-securing is applicable to the same parts of a building as the method of extra lathing just described; but it is not often necessary to be made use of.

§ 17. I have made a prodigious number of experiments upon every part of these different methods. I caused a wooden building to be constructed at Chevening, in Kent, in order to perform them in the most natural manner. The method of extra-lathing, and double under-flooring, were the only ones made use of in that building.

On the 26th of September 1778, I had the honour to repeat some of my experiments before the President and some of the Fellows of the Royal Society, the Lord-Mayor and Aldermen of the City of London, the Committee of City Lands, several of the Foreign Ministers, and a great number of other persons.

§ 18. The first experiment was to fill the lower room of the building (which room was about twenty-six feet long by sixteen wide) full of shavings and faggots, mixed with combustibles, and to set them all on fire. The heat was so intense, that the glass of the windows was melted like so much common sealing-wax, and run down in drops; yet the flooring-boards of that very room were not burnt through, nor was one of the side-timbers, flooring-joists, or ceiling-joists, damaged in the smallest degree; and the persons who went into the room immediately over the room filled with fire, did not perceive any ill effects from it whatever, even the floor of that room being perfectly cool during that enormous conflagration immediately underneath.

* If a third layer of laths be immediately nailed on, and covered over with a third coat of rough plaster, I then call the method treble lathing; but this method of treble lathing can almost, in no case, be required.

§ 19. I then caused a kind of wooden building (of full fifty feet in length, and of three stories high in the middle) to be erected, quite close to one end of the secured wooden house. I filled and covered this building, with about eleven hundred large kiln faggots, and several loads of dry shavings; and I set this pile on fire.

The height of the flame was no less than eighty-seven feet perpendicular from the ground, and the grass upon a bank, at a hundred and fifty feet from the fire, was all scorched; yet the secured wooden building, quite contiguous to the vast heap of fire, was not at all damaged, except some parts of the outer coat of plaster-work.

This experiment was intended to represent a wooden town on fire, and to shew how effectually even a wooden building, if secured according to my new method, would stop the progress of the flames on that side, without any assistance from fire engines, &c.

§ 20. The last experiment I made that day, was the attempting to burn a wooden stair-case, secured according to my simple method of under-flooring. The underside of the stair-case was extra lathed. Several large kiln faggots were laid and kindled under the stair-case, round the stairs, and upon the steps; this wooden stair-case, notwithstanding, resisted, as if it had been of fire-stone, all the attempts that were made to consume it.

I have since made five other still stronger fires upon the same stair-case, without having repaired it, having, moreover, filled the small place in which this stair-case is entirely with shavings and large faggots; but the stair-case is, however, still standing, and is but little damaged.

§ 21. In most houses it is necessary only to secure the floors; and that according to the method of single under-flooring described above, in § 2, 3, 4, and 5. The extra expence of it (all materials included) is only about nine-pence per square yard, unless there should be particular difficulties attending the execution, in which case it will vary a little. When quick lime is made use of, the expence is a trifle more.

The extra expence of the method of extra-lathing is no more than six-pence per square yard for the timber side-walls and partitions; but for the ceiling about nine-pence per square yard. No extra-lathing is necessary in the generality of houses.

§ 22. I propose giving to the world, before it is very long, a detailed account of many other experiments I have made upon this subject, and of the various advantages arising from my method, with several particulars, relative to the different parts of each of the methods above described, and relative to their joint or separate application to different kinds of buildings, and to the different constituent parts of a house; to which I shall add a full explanation of the principles upon which they are founded, and the reasons for their certain and surprising success.

ART. VII. *Instructions to Tanners for carrying on the new Method of Tanning, invented by Dr. MACBRIDE, of Dublin; whereby the Leather is not only improved in its quality, but tanned in much less Time, and with a smaller quantity of Bark, than in any other Method hitherto known or practised.*

[From the Philosophical Transactions.]

THE first part of this sensible and useful paper, gives the reasons for the preference the method of tanning here recommended has over the usual method, and explains the principles of the art; insomuch, as to deserve the notice of all who are therein engaged or interested. We have confined ourselves to the method only, for the sake of bringing what we wish to communicate, within the compass of the present number.

“As the new method of tanning depends on this principle, that lime-water extracts the virtues of oak-bark more completely than plain water,” the first thing in which the tanner is to be instructed is, the making of lime water:

1. Provide a large vessel, in the nature of a cistern, whose depth shall be twice its diameter, and of a capacity adapted to the extent of the tan-yard.

2. Fix this cistern in a convenient corner of the yard, under a shed; and let it be so placed, as that the liquor to be drawn off from it may run freely into the latches.

3. There must be a cock fixed in the side of the cistern, about a foot from the bottom, to let off the contents; and there must be a hole in the bottom of it of five or six inches diameter, which is to be stopped with a plug. Let this hole open over a gutter.

4. The cistern must be covered with a flooring of boards, strong enough to bear a man's weight; and from side to side of this lid, there must be an opening of two or three feet wide.

5. If it can be so contrived that a water-pipe may be led into the cistern, it will save a good deal of trouble, otherwise a pump must be fixed in the most convenient way for the purpose of filling it from time to time.

6. The cistern being once fixed, the making of lime-water will be found extremely simple and easy.

7. You are first to fill the cistern with water, and then, for every hoghead that it may contain, throw in ten or a dozen pounds of unslacked lime.

8. Mix the lime thoroughly with the water, by stirring it well from the bottom with a bucket and plunger, until the lime is completely diffused, and the whole mixture grows as white as milk; leave it then to settle for a couple of days, and

the water will become perfectly limpid and clear as rock water, and will then be fit for immediate use.

9. The cock, as already mentioned, is to be fixed at least twelve inches from the bottom of the cistern, in order that only the limpid part of the lime-water may run off, and the hole in the bottom is to let off the gross and insoluble remains of the lime, when it becomes necessary to clean the cistern.

10. When the first brewing (as it may be termed) of lime-water is all expended, the cistern may be filled a second time with water, stirring up the lime as before; and this operation may be repeated a third, fourth, fifth, or perhaps six or more brewings, from the original quantity of lime, provided the lime-water is found sufficiently strong.

11. There are two ways of knowing when lime-water is sufficiently strong; the one by the taste, which a little practice will teach you; the other by observing a solid scum, like the flakes of thin ice, which forms itself on the surface of the lime-water. As long as this scum appears there is no necessity for fresh lime.

12. When these marks of the strength of the lime-water are wanting, the cistern should be cleared of the gross remains of lime, and you should begin brewing lime-water anew, proceeding in the manner already directed; and thus you may constantly keep yourself in stock with respect to lime-water. ||

13. This lime-water is to be used in making your ooze, instead of common water; and this is all the difference between the old and new method of tanning; for when your ooze is prepared, by steeping your bark in lime-water (in the latches as you do at present, only running it through two latches) you are to make use of it in the very same way that you have hitherto used the common ooze, no variation being required to fit the skins or hides for the ooze. Every thing that relates to cleaning, liming, fleshing, &c. is to be conducted precisely as in the old, or common method of tanning; and the goods are to be worked in the handlers for the requisite time, and then laid away in the vats with layers and headings of bark, just as you now practise, and when you observe the leather is sufficiently penetrated with the ooze, that is to say, completely tanned, you will take it up, dry it, and dress it according to the uses for which it is intended. You are always to observe, however, that the ooze is to be turned from one latch on another before it is used, otherwise it will be apt to blacken the leather.

14. What has been hitherto said relates only to butts and calf-skins; as to foal-leather, which is prepared for the ooze by steeping it in some sour liquor, in order to open its pores, and raise it (according to the tanner's phrase) the new method requires a different practice from the old one.

15. In the old method, the sourings were brewed generally from rye, or other grain; but these liquors are not only troublesome to brew and ferment, but uncertain as to their degree of sourness, or strength; which depends on the state of the weather and other variable circumstances; besides that they are apt to rot the leather, and, without great care, materially injure its texture.

16. To obviate these inconveniences, you are to imitate the bleachers of linen, who use a sour prepared by diluting the strong spirit (vulgarly called oil) of vitriol, with a sufficient quantity of plain water.

17. It was difficult to prevail on the bleachers to quit their old sourings, made like yours, or of sour butter-milk, from a groundless fear, that the vitriolic souring would corrode their cloth; but experience has convinced them of their error, and now no other souring is used. The tanners at first may be afraid to use the vitriol, but practice will shew them its superiority. It will be always of the same degree of strength, and so far from tending to rot the leather, it gives it an unusual firmness, and the soles raised by the vitriolic souring are remarkably sound, and always free from the slightest degree of rottenness. Besides the sour may do for many parcels of leather, by adding a little vitriol to it, and it need only be thrown away when it becomes too dirty for use, by the frequent succession of hides.

18. A wine-pint of strong spirit of vitriol, value nine-pence or ten-pence, is sufficient for fifty gallons of water, to prepare the souring at first, if the vitriol be of the due degree of strength; therefore, all you have to do in raising the soles, is only to prepare them before-hand in the usual way, and when they are fitted for the souring, mix up your quantity of vitriol and water, according to the number of hides to be raised. The hides may lie in the souring till sufficiently raised, for they will be in no danger of rotting, as they would be in the common corn sourings, which in time might turn putrid, and rot the leather; whereas the vitriolic souring keeps off putrefaction.

19. When you find your hides sufficiently raised, put them directly into the ooze, and go on with the tanning as in the old way, and you will see that the lime-water ooze penetrates raised leather even faster than it does butts or calf-skins, allowance being made for their different degrees of thickness.

20. Let it now be supposed that you have some latches full of lime-water ooze, which has been run through two latches, that the lime-water may completely spend its force on, or be highly impregnated with the barks, you are not to throw away what common ooze you have in stock in the yard, but only as it shall be spent; then, indeed, you are to throw it away, and supply its place with the lime-water ooze.

21. In

21. In a very few days, you will perceive the difference between the two oozes, the new and the old, with respect to penetrating the leather; and thus you will consume your old ooze, and coming speedily to a stock of new, or lime water ooze, your business will go in a regular course, and one parcel of goods will succeed another, as fast as you can manufacture them.

22. Though it is possible to tan small parcels of leather by the use of lime-water ooze, in a fourth part of the time required by the common method, the business of a large tan-yard cannot be carried on with so much expedition; but even in large works, and in the common course of business, sole leather can be completely finished in from eleven to fifteen months, according to the different weight and thickness of the hides. Butts, in from eight to twelve months, and calf-skins, in from six to twelve weeks; in general, the tanner may save at least a third of the time that has hitherto been required.

23. The leather, which is manufactured in the new way, is of a superior quality to that of the old tannage, especially the sole leather, which wears remarkably well, and never shews the least signs of rotteness.

24. Let it always be remembered, that the lime-water is never to be used but when it is sufficiently strong, and as clear as rock water.

25. Whenever you make fresh ooze, you must always use fresh lime-water, and tan the ooze through two latches; and the lime-water ooze, when spent, from lying on the leather, is never to be returned back upon the bark which is in the latches, (as you now return your spent ooze) but must always be thrown away, as being entirely useless, for which purpose a gutter should be contrived in the yard.

26. The latches ought to be under cover, lest the rain get into them, and weaken the ooze; and if the handlers are sheltered, it will be so much the better; but it is of no importance to cover the vats, provided when the leather is laid away in them, they are kept constantly full to the brim.

27. You must take care to have a sufficient stock of unslacked lime by you, (for if it be slaked it will not answer for lime-water) therefore, get your lime fresh, if possible, from the kiln, and immediately pack it in any kind of old dry casks. Weigh the casks, and it will enable you to ascertain the quantity of lime necessary to be thrown into the cistern each time you begin a fresh brewing of lime-water, and thus save the trouble of repeated weighings; not that there need be much nicety about the quantity of lime, a score pounds more or less making no sensible difference.

28. Any expence in procuring lime will be amply compensated in the saving of bark; because lime-water extracts the astringency and gum resin of the bark so much better than plain water. As a proof of this, you may make a pretty strong ooze from the tan or spent bark, which has been considered as completely exhausted, by infusing it in lime-water.

Tanners, as they become acquainted with the new method, will find it perfectly easy, and may, no doubt, make further improvements by experience. The foregoing directions were found sufficiently full for enabling a gentleman at Belfast, to carry on the business in an extensive way for these four years past; and it is presumed, they will prove equally clear and intelligible to all other persons in the tanning trade.

ART.

ART. VIII. *Observations on Diet and Exercise in Consumptive Complaints; from "Dr. S. F. Simmons's Treatise on Consumptions."*

A Milk and vegetable diet are pretty generally recommended by all physicians, from a supposition that animal food increases the inflammatory symptoms by its stimulus, and the tendency to hectic by its alkalescency. But I have very seldom perceived any such effects from it, when dressed in a plain manner, and eaten sparingly, with a large proportion of puddings, ripe fruit, butter-milk, &c. In these cases there is often as much danger from the quantity as from the quality of the food. It is perhaps hardly necessary to remark, that salted meats and high-seasoned dishes will be particularly injurious. The inclinations of the sick on these occasions ought to be consulted. If a patient expresses a desire for any particular sort of animal food, eats it with a good appetite, and it is found to agree with him, the physician should indulge him in a prudent use of it, recommending moderation, and carefully attending to its effects. Sometimes we meet with patients who are averse to animal food; they should live entirely on milk, fruit, &c. Dr. Mutzel of Berlin, in his *Obs. Med.* speaks of a young woman who was cured of an incipient phthisis by living on bread and cucumbers, and drinking cold water only. I can venture to assert, however, that in the generality of patients, any light animal food, eaten sparingly, and at dinner only, will have a better effect than a total abstinence from it, provided the greater part of the patient's diet consists of skimmed milk, or asses milk, or butter-milk, or whey, &c. Shell-fish, and particularly oysters, will sometimes be beneficial; and so will snails, either swallowed whole, or boiled in milk. Thin light broths, made of the flesh of full grown animals, may likewise be occasionally used to advantage. Spirituous and fermented liquors of every kind are in general pernicious. Plain milk of any sort is often found too stimulating in these cases; and I have now and then seen it disagree with patients from their taking too great a quantity of it at a time. From its acescency it is frequently rendered purgative; more commonly, however, from the insolubility of its coagulum, it occasions costiveness. Asses milk, from its being more fluid and nutritive, and affording less of coagulum, is preferable to cows milk; but in the quantity in which it is commonly taken, it can be but of very little service. We see patients drinking half a pint of it twice a day as a medicine, rather than as an article of diet; whereas, if any good is to be expected from it, it ought to constitute the chief part of their nourishment. When cows milk is used, it should be skimmed, or, if drank warm from the cow, diluted with a third part or more of water. In general, however, butter-milk or whey, are preferable to pure milk. I have seen obstinate coughs, attended with loss of flesh, flushing heats, and all the symptoms that threaten a confirmed phthisis, give way to a regimen of butter-milk, ripe fruit, and a moderate use of animal food, assisted by a seton in the side, and other suitable remedies.

Speaking of exercises, Dr. Simmons observe, that it should be gentle, proportioned to the strength of the patient, and employed only

only in the morning. In fine weather an easy open carriage is, perhaps, the most eligible, not only on account of its being open to the air, but because it affords that kind of agitation which is most wanted in these cases. For if we consider the different modes of exercise, we shall find that walking, though the best exercise in health, as it employs the muscles most, is the worst for the sickly, who should have the benefit of exercise without fatigue. Riding on horseback agitates the viscera more than walking, and is therefore preferable to it in many chronic diseases; but when a preternatural determination to the lungs has taken place, it will be liable to increase the evil, and may also be hurtful by the fatigue that attends it. For these reasons it will be prudent to begin with a carriage.

The gentle motion of a coach has been often found of great utility in pulmonary complaints. I recollect the case of a lady, who was cured of a beginning consumption, by travelling several hundred miles thro' different parts of England in her own coach. At first, whenever she tarried three or four days in any place, the disorder began to return again; but at length, by persevering in her journies, it gradually went off. It is now pretty generally acknowledged, that the good effects of sea voyages in consumptive cases, depend principally upon the constant and uniform motion of the ship. The ancients were no strangers to this remedy; and amongst the Romans it was no unusual thing for consumptive patients to sail to Egypt. Pliny observes, this was done not for the sake of the climate, but merely on account of the length of the voyage.

ART. IX. *List of the Fairs in the Month of March.*

1. ALDBOROUGH, Bristol, Colyford, Duffield, Seaton. 3. Fincham.
 Frampton, (Dorsetshire) Grassington, Stockport. 5. Boliney, Bury, (Lancashire.) 6. Burnley, Hingham. 7. Aberfraw, Baldock, Blandford, Bourn, Buckingham, Chipping-Norton, Corsham, Frampton, (Dorsetshire) Henley, (Oxon) Higham-Ferrers, Nottingham, Tewksbury, Uppingham. 10. Norton. 11. Llandegla. 12. Corwen, Langadock, Mydrim, South-Bourn, Sudbury, Talgarth. 13. Seaford. 14. Bradford, (Yorkshire) Northop. 15. Bradford, (Yorkshire) Burnham, (Norfolk) Okeham, Oswestry, Tregarra. 16. Betrus, Casirwyth, Tregarra. 17. Cobham, Llangellon, Tregarra. 18. Cerne Abby, Llanusydd. 19. Rothin. 20. Sedbergh, Workop. 21. Fazley, Mold, Narberth, Philips-Norton, Midhurst. 23. Alesham, Retford, Skipton, Wraxham, Wooburn (Bedfordshire.) 24. Clithero, Keynsham, Wye. 25. St. Albans, Ash, Axbidge, Bishop's-Lydeard, Chagford, Earls-Colne, Grampound, Great-Chart, Henley (Warwickshire,) Huntingdon, Malpas, Oxbridge, Rudland, Stockport, Watlington, Wigton, Woodbridge. 26. Feckenham, Montgomery, Nantwich. 27. Philips-Norton, Preston (Lancashire.) 28. Loughborough, Malmesbury, Patrington. 29. Chappel-in-le-Firth, Llangerniew, Stourbridge, Wellington, (Salop.) 31. Durham, Newbridge.—*The following are the Moveable Fairs in March*
 First Wednesday, at Liphook. First Thursday, at Ashburton, Caerphilly, Launceston, Montgomery. First Saturday, at Wantage. Second Monday, at Pool, (Montgomeryshire,) Friday after the 10th, at Camelford. Second Tuesday after the 11th, at Oakhampton. Wednesday after the 12th, at Knaresborough. Saturday after the 15th, at Shrewsbury. Thursday after the 21st, at Rippon. Saturday fortnight before the 25th, at Titchfield. Tuesday before the 25th, at Howden. Wednesday before the 25th, at Dokon. Thursday before the 25th, at Promyard. Thursday before the 28th, at Stratford upon Avon. Last Tuesday, at Wn. Last Thursday at Penniston. Last Friday, at Churchingford.



T H E
FARMER'S MAGAZINE.

MARCH, 1780.



A DISSERTATION on the Progress and present State
AGRICULTURE. [Continued.]

E U R O P E.

A MERICA, Africa, and Asia, have been travelled over, and it now remains for us to speak of Europe, which we left alone to the last, as being the emporium of the other three. Many parts are perhaps as little known as the parts of Asia and Africa which we have before described, but to make amends for that, other parts are perfectly familiar to our crops, and the exchange of husbandmen would make but little variation in the produce.

There are numberless articles of improvement, which we perhaps would wish to introduce, but the constant innovations of book-learned men are the destruction of true husbandry; they tease and perplex the minds of men, and take off their attention from the great object of their concern, viz. Experience from the nature of their soil and the produce of the farm; these should alone teach him if he be right, or if he be wrong; let him not be led to transport the practice of a Polanese indiscriminately into his Essex Farm, without first seeing it thrive, at least in some little spot nearer his natural home. The Editor hears a great number of stories of what wonderful crops are raised in some counties above others; that in some counties there are no good farmers, while in others there are no bad ones.

VOL. V.

I

These

These and many others the Editor listens to sometimes silently, while the *pish* is ready to break his teeth for vexation.

There are good farmers every where, and no country but what produces something valuable to answer for what she receives from others. It would be to little use or purpose for farmers to raise corn, if there were no markets for sale; the farmer, in that case, must starve in plenty, but that indeed is, we hope, at a very far distance.

Each particular country had its original and peculiar products, seeds, and plants; these have been distributed as the intercourse between the inhabitants have increased, and it is now nothing new to see, in the European gardens, the products of the East and Western world. This cannot be expected in the larger scale of husbandry; but by the intervention of commerce we can taste the sugars of the Indies, and the coffee of Arabia. The produce of the English farmer (wool) is transported into every part of the world, and we receive articles of use, convenience, and luxury, in return.

It may be thought that, as we come nearer home, the task will be the easier; but, on the other hand, the remarks will be more obvious, and we must pay pretty close attention not to lose the great object of our labour, instruction and information.

After all, a little tour through the world in an easy chair, without the expence of turnpikes or danger of bad roads, is pleasing enough to a farmer, who, when he has read all, finds at last this comfortable reflection—that happiness is to be found at home only.

Nations may hold out inviting scenes. India tempts us with mines of Golconda and her silks of Bengal; China may boast of her teas, and her earthen-ware, &c. &c. The farmer may emphatically say—They are as much mine as if they were my produce, for the corn of my fields will purchase all these for me. Allow me the freedom of the English laws to live under, I ask nothing further from an earthly power, but submit the rest to him who made the seasons and distributes them.

Europe, though the least quarter of the globe, is in many respects an object of the greatest consequence, and worthy consideration.

No event has been so interesting to mankind in general, and to the inhabitants of Europe in particular, as the discovery of the New World, and the passage to India by the Cape of Good Hope. It gave rise to a revolution in the commerce, and in the power of nations; and in the manners, industry, and government, of the whole world. At this period, new connections

tions were formed by the inhabitants of the most distant regions, for the supply of wants they had never before experienced. The productions of climates situated under the Equator were consumed in countries bordering on the Pole; the industry of the North was transplanted to the South; and the inhabitants of the West were clothed with the manufactures of the East: a general intercourse of opinions, laws and customs, diseases and remedies, virtues and vices, was established among men.

Every thing has changed, and must change again. But it is a question, whether the revolutions that are passed, or those which must hereafter take place, have been, or can be, of any utility to the human race? Will they ever add to the tranquillity, the happiness, and the pleasures of mankind? Can they improve our present state, or do they only change it?

The Europeans have founded colonies in all parts, but are they acquainted with the principles on which they ought to be formed? They have established a commerce of exchange, of the productions of the earth, and of manufactures. This commerce is transferred from one people to another. Can we not discover by what means, and in what situations, this has been effected? Since America and the passage by the Cape has been known, some nations that were of no consequence are become powerful: others, that were the terror of Europe, have lost their authority. How has the condition of these several people been affected by these discoveries? How comes it to pass, that those, to whom nature has been most liberal, are not always the richest and most flourishing? To throw some light on these important questions, we must take a view of the state of Europe before these discoveries were made; we must trace circumstantially the events they have given rise to; and conclude with examining it, as it presents itself at this day.

The commercial states have civilized all others. The Phœnicians, whose extent of country and influence were extremely limited, acquired, by their genius for naval enterprises, an importance which ranked them foremost in the history of the ancient nations.

They are mentioned by writers of every class. They were known to the most distant climes, and their fame has been transmitted to succeeding ages.

Situated on a barren coast, separated from the continent by the Mediterranean on the one side, and the mountains of Libanus on the other; they seem to have been destined by Nature for the dominion of the sea. Fishing taught them the art of navigation, and furnished them with the purple dye, which they

extracted from the murex: at the same time the sea-sand led them to discover the secret of making glass. Happy in possessing so few natural advantages, since the want of these awakened that spirit of invention and industry, which is the parent of arts and opulence!

It must be confessed, that the situation of the Phœnicians was admirably adapted to extend their commerce to every part of the world. By inhabiting, as it were, the confines of Africa, Asia, and Europe, if they could not unite the inhabitants of the globe in one common interest, they at least had it in their power, by a commercial intercourse, to communicate to every nation the enjoyments of all climates. But the antients, whom we have so often excelled, though we have derived much useful knowledge from them, had not means sufficient to enable them to establish an universal commerce. The Phœnicians had no shipping except gallies; they only carried on a coasting trade, and their sailings was confined to the Mediterranean. Though this state was the model upon which other maritime powers were formed, it is not so easy to determine what they have, as what they might have performed. We may form a conjecture of their population by their colonies. It is said that their numbers extended along the coasts of the Mediterranean, particularly on the shores of Africa.

Tyre or Sidon, the queen of the ocean, gave birth to Carthage. While the opulence of Tyre invited tyrants to rivet its fetters, Carthage, the offspring of Tyre, notwithstanding its riches, had this happy advantage over the parent state, that it enjoyed its liberty. It commanded the coasts of Africa, and had possession of Spain, which in those days was the richest country in Europe, and famous for gold and silver mines of its own, though destined, at the expence of so much bloodshed, to acquire others in the new world.

Had the Roman power never existed, Carthage would in all probability have been nothing more than a commercial state; but the ambition of one nation excited all the rest to relinquish the arts of commerce to those of war, and either to conquer or to perish. Carthage, after a long and glorious contest for the empire of the world, was forced to submit to the all-subduing genius of Rome. The subversion of a republic, which gloried in its industry, and owed its power to its skill in useful arts, was, perhaps, a misfortune to Europe, and to the world in general.

Commerce, agriculture, and the means of population, were introduced into Sicily by the Greeks and the Carthaginians. Rome, who beheld their progress with a jealous eye, seized upon

upon that island which was destined to supply it with subsistence; and having driven out the two nations that contended for the sovereignty of it, attacked first one, and then the other. From the moment that Carthage was destroyed, Greece trembled for her fate. But it was Alexander who marked the way for the Romans; nor was it possible, perhaps, for the Greeks to have subdued a foreign power, if they had not first conquered each other. Commerce is finally destroyed by the riches it accumulates, as power is by its own conquests; and when the commerce of the Greeks had failed in the Mediterranean, it no longer subsisted in any part of the known world.

The Romans, formed for conquest, though they dazzled the world with an appearance of grandeur, fell short of the Greeks in their improvements in philosophy, and the arts. They promoted an intercourse between different nations, not by uniting them by the ties of commerce, but by imposing upon them the same yoke of subordination. They ravaged the globe, which, when reduced to subjection, they left in a state rather of lethargy than tranquility. Their despotism and military government oppressed the people, extinguished the powers of genius, and degraded the human race.

[*To be continued.*]

ART. II. *Method of preserving Cabbages, Radishes, &c.*

Mr. SYLVAN,

PLANTS cultivated in the open fields, where there is a great deal of game, are liable to be consumed, especially by hares. This is a very great misfortune in those places where a great deal of Cabbage is planted; and many methods have been used to prevent it, though without success: that we are going to describe, may be tried with great safety, since every time it hath been practised; it hath always produced the desired effect. The misfortune must be prevented at the time of planting. For an acre of ground, take two ounces of *assa-fetida*, such as is sold by the apothecary or druggist; put it into a small pot, full of dung juice, and boil it till the whole is dissolved; then empty this decoction into a shallow tub; add a pint or two of dung juice; stir it well with a piece of wood, and carry it into the field for use. All the plants, before they are put into the earth, must be steeped in this composition in the following manner: A person must be expressly employed in preparing them for being planted. Take as many of them as you can clasp in both hands, and dip them in the prepared matter, so as that each

each plant shall be moistened in every part. This being done, lay them in heaps upon the ground, and sprinkle a little earth upon the roots. Distribute the plants thus moistened to the planter, who must immediately set them in holes prepared for that purpose; then press the earth against the plant with a piece of wood made for that use, and continue so to the end. No game will touch these plants, but, on the contrary, avoid them with great precipitation. Yet the plants which are either not all, or not sufficiently sprinkled, will soon be discovered and eaten by the hares; so that the place must be replanted. There is no danger of the plant's contracting any bad scent from this preparation; for the sun and air will purify it in time. As for caterpillars, and other insects, which bite the young cabbage plants, radishes, &c. they may be prevented very easily by the following remedy.—Take a pail of dung-water, and infuse into it of *assa-fatida* 6 dwt. woad 3 dwt. garlick 3 dwt. laurel berries bruised 3 dwt. leaves or tops of alder, one handful, carline, white camoleon, or thistle root, one handful. Let the whole digest for three days and three nights. When you have occasion to use this composition, take a whisp of rye-straw, and dipping it in the pail, sprinkle the small plants that are infected by those insects, which will soon perish, or forsake the place—To this remedy we will add another, which is infallible against the caterpillars in cabbage. Sow with hemp all the borders of the ground where you mean to plant your cabbage, and you will see with surprize, that although the neighbourhood is infected with caterpillars, the space inclosed by the hemp will be perfectly free; not one of the vermin will approach it.

ART. III. *History of Seeds, &c.*

Mr. SYLVAN,

AS there is such difference in the length of time, which some seeds will keep good over others, I thought it would not be unacceptable, if I should send an account of those seeds which require to be sown soon after they are ripe; and of others, how long they may be kept good, if they are carefully saved; the following table will, in a great measure, direct how those seeds require to be treated.

The first class of seeds which I shall enumerate, is of those which should be sown in autumn, soon after they are ripe; otherwise many of them will not succeed, and others will often remain in the ground a whole season, if they are kept out of the ground till spring, whereby a full year will be lost.

HORTICULTOR.

Adonis, or Flos Adonis
Alexanders, or Allissanders
Anemony, or Windflower
Angelica
Arse-smart, the eastern sort
Ash-keys
Asphodel, or Kingspear
Auricula
Beech-mast
Bishopsweed
Christopher-herb
Ciceli
Colchium, or Bastard-saffron
Cornfallad
Cornflag
Crocus
Crown Imperial
Fennel-giant
Flower-de-luce
Fraxinella
Fritellaria, or chequered Tulip
Gentian
Ground Pine
Hares-ear
Hartwort
Hogs-fennel
Hornbeam
Hyacinth
Juniper
Laserwort
Lilly
Lilly-asphodel
Lilly-hyacinth
Lilly-narcissus
Lovage
Mandrake
Maple
Masterwort
Mercury
Moly
Muscari
Narcissus, or Daffodil
Oak
Oak of Jerusalem

Pasque Flower
Piony
Polyanthus
Ranunculus or Crowfoot
Samphire
Scurvy-grass
Seseli, or Sermountain
Snow-drop
Sowbread
Spiderwort
Spignel
Star of Bethlehem
Staves-acre
Tulip
Turnsole
Yew Tree.

In the next class I shall enumerate those sorts of seeds, which are best the first spring after they are sowed, many of which will not grow if they are kept longer; wherefore those who deal in seeds should destroy the seed they have remaining after the season is over, and not sell them to impose on their dealers to the great loss of their crops, nor keep them to mix with new seeds, as is too often practised.

African Marygold
Agrimony
Alkanet
Amaranthoides, or Globe Amaranthus
Anise
Asparagus, or Spearage
Balsamine
Basil
Bastard Saffron
Bay-tree
Bean

Beet

Beet
 Blue-Bottle
 Borage
 Buckwheat
 Bugloss
 Canterbury-bell
 Carraway
 Carnation
 Carrot
 Caterpillar
 Celery
 Chervil
 Chestnut
 Chichling Pea
 Clary
 Columbine
 Coriander
 Cranesbill
 Cress
 Cumin
 Cypress
 Dames Violet
 Everlasting Pea
 Fennel
 Fennel Flower
 Fenugreek
 Finochia
 Firr
 French Honeysuckle
 French Marigold
 Goats rue
 Globe Thistle
 Gromwell, or Graymill
 Henbane
 Hemp
 Hollyhock
 Hyssop
 Indian Pepper
 Kidney Bean
 Larch Tree
 Larkspur
 Lavender
 Laurel
 Leek
 Lentil

Love-apple
 Lupine
 Lychnis, or Catchfly
 Mad-apple
 Mallow, the Venetian
 Marjoram
 Marvel of Peru
 Marygold
 Millet
 Mullein
 Moth-mullein
 Navew
 Oil-nut, or Palma Christi
 Roman Nettle
 Onion
 Orach
 Origany
 Panic
 Parsley
 Parsnep
 Peas
 Pink
 Poppy
 Purslain
 Radish
 Rape
 Rue
 Savory
 Scabious
 Skirret
 Snails
 Snapdragon
 Spinach
 Stock-gilliflower
 Succory
 Sun-flower
 Thyme
 Tobacco
 Trefoil
 Turnep
 Venus Looking Glass
 Venus Navelwort
 Vetch
 Woad
 Wall-flower

The next class of seeds are such as may be kept two years, and will not be the worse, provided they are well saved, though these are equally good for use the first year.

Amaranthus, or Flower-gentle
Cabbage
Cauliflower
Citrus, or Water Melon
Clover
Convolvulus, or Bindweed
Endive
Flax
Indian Flowering-reed
La-lucern
Lavender
Lettuce
Mellilot
Mustard
Sorrel.

The fourth class of seeds are such as may be kept three years or more, and will grow very well afterwards, provided they are well saved; and some of the sorts are generally preferred for being three years old, particularly the cucumber and melon seeds; because when the seeds are new, the plants grow too vigorous, and produce a small quantity of fruit; but it is not proper to keep these longer than four or five years, notwithstanding they will grow at eight or nine years old; because when the seeds are old, the plants will be weak, and the fruit which they produce will be small.

Amaranthus, or Flower-gentle
Cabbage
Cedar of Libanus, if kept in the Cones
Cucumber
Gourd
Lettuce
Melon
Pinus, the Pine Tree, if kept in the Cones
Pumpion
Savoy
Simnel, or Squash
Water Melon

The following is a list of such seeds as will frequently remain in the earth a whole year, especially if they are sown in the spring of the year; so that whenever the plants do not come up the first year, the ground should remain undisturbed till the following spring (but must be kept clear from weeds) when the plants will come up.

Adonis, or Flos adonis
Alaternus
Alexanders
Angelica
Corn-sallad
Fennel
Fraxinella, or White Dittany
Golden-rod
Cromwel, or Graymil
Hares-ear
Hartwort
Hawthorn
Hog's-fennel
Holly
Juniper
Laserwort

Lovage
Maple
Masterwort
Mercury
Moly
Piony

Sesely, or Sermountain
Spignel
Starwort
Staves-acre
Turnsole
Yew.

If the seeds mentioned in this list are sown soon after they are ripe, many of the sorts will come up the following spring; but whenever they fail so to do, there will be no danger of their growing the following year, provided the seeds were good, therefore people should not despair of them the first year. Most of the umbelliferous plants have this property of remaining in the ground several months, and sometimes a whole year, before the plants appear; therefore they should be managed accordingly, by sowing their seeds on a border, which can be suffered to remain undisturbed till the plants come up. There are some particular sorts of seeds, which I have known to remain in the ground eighteen months, and sometimes two years, after which time the plants have come up very well: of these sorts are the *Morina*, *Tribulus terrestris*, *Stavesacre*, *Mercury*, and some others; but as they do not constantly remain so long in the ground, there can be no certainty of the time when the plants will appear.

The rules here laid down, concerning the length of time which seeds may be kept out of the ground and prove good, will in general be found true; being drawn up from several years experience, having taken notes every year from the times of sowing great varieties of seeds, to the appearance of the plants above ground. And in this I have observed such oddness in the growth of seeds, as is not to be accounted for; as that of sowing seeds of the same plants for two or three years successively, and not having had one plant arise; and the fourth year, from the remaining part of the seeds, I have had some plants come up, notwithstanding the age of the seeds. At other times it has happened, that some seeds have grown the same spring they were sown, and a great part of them have remained in the ground till the following autumn, when the plants have come up, so that there have been two different crops from the same sowing.

I have also tried many experiments in keeping of seeds, and find the best method to preserve them good is, to keep them in a moderate temperature of warmth, where they may not suffer from any inclemencies in the outward air, nor have too much warmth,

warmth, which will exhale the moisture too freely; and cause the seeds to decay sooner than they otherwise would do. This is well known to those who cultivate melons, who, when their seeds are new, which would occasion the plants being too vigorous and therefore not so fruitful, put them into the inner pocket of their breeches, which are in constant wear, where they keep them for six weeks or two months before they sow them; which will weaken the seed, as much as two years longer keeping in the ordinary way.

All sorts of seeds will keep much longer in their pods, or outer coverings, where they can be thus preserved; because the covering not only preserves them from the injuries of the outward air, but if the seeds are not separated from them, they supply them with nourishment, and thereby keep them plump and fair. But the seeds of all soft fruits, such as cucumbers, melons, &c. must be cleansed from the fruit and mucilage which surrounds them, otherwise the rotting of these parts will corrupt and decay the seeds in a short time.

When seeds are gathered, it should always be done in dry weather, when there is no moisture upon them; and then they should be hung up in bags (especially those which vermin eat) in a dry room; in which situation they will keep longer good than if they were closely shut up, and the air excluded from them.

There are but few people who are curious enough in saving their seeds; some for want of judgment, not distinguishing the best plants of their kinds, to let them grow for seeds; and others, out of covetousness to save a great quantity of seeds, frequently let a whole spot of ground, filled with any particular sort of plants, run up to seed, so that the good and bad plants are saved indifferently; which is the occasion of the general complaint of the badness of the seeds which are commonly vended, and is what the dealers in seeds should endeavour to remedy.

There is a common method of trying the goodness of many sorts of seeds, which is, by putting them in water; and those of them which sink to the bottom are esteemed good, but what swim on the surface are rejected as good for little; but this will not hold in many sorts, for I have saved the seeds of melons, which have floated on the surface of the water when they were washed from the pulp, and after keeping them two years, they have grown well; but the melons produced on these plants were not so thick fleshed as those which were produced from heavy seeds of the same melon. The lightness of many sorts of seeds, I apprehend, may be owing to their not having been

sufficiently impregnated by the *Farina facundans*; which is frequently the case with those plants that are kept in stoves, or under frames, where the external air is often too much excluded from them; which may be absolutely necessary to the conveying of the *farina* in substance, or the gentle effluvia thereof, to the uterine cells; and this more particularly may be the case, in those sorts which are male and female in different plants; or where the male flower grows at remote distances from the female, on the same plant; which in the melons, cucumbers, gourds, and many other sorts of plants, is constant. Therefore of late years, since the doctrine of the generation of plants has been better known amongst gardeners, they have been curious enough to assist Nature in this operation; but they have had more regard to the production of fruit, than to the obtaining of perfect seeds; though by the procuring of the one, the other must of course receive the benefit. This practice has been principally confined to the setting of the fruit of their melons, and early cucumbers. The method is this; when the fruit appears upon the plants, and the flower at the top is just fully expanded, they take some of the most vigorous male flowers, and with a pin move the apices which sustain the *Farina facundans*, gently up and down, over the blossom of female flowers, whereby the farina is scattered into them; and also lay one of the fresh blown male flowers with the open side over the mouth of the female flowers, that hereby the fruit may be sufficiently impregnated; and where there are male flowers so situated, as that they may be joined without pulling them off the plant, it is always to be chosen. By this method the gardeners have succeeded in setting the first fruits of this sort, which have appeared on the plants; which, before this was practised, generally dropped off, and never grew to any size; so that very often, when the weather has proved so unfavourable as to render it unsafe to admit the external air to the plants, the fruit has been produced successively, for three weeks or a month, before any of them have been set to grow, but have fallen off soon after they appeared. Therefore this is a convincing proof of the necessity for the ovary of the fruit to be impregnated, especially where good seeds are to be obtained; and this will explain the cause of new seeds often failing; so that many persons have been deceived by sowing seeds of their own saving, without knowing how it has happened. I have several times been deceived in obtaining good seeds from tender exotick plants, which have flowered, and produced (to all appearance) very good seeds, but many times they have all failed; which

which I apprehend was owing to the keeping of the glasses so close, during the time the plants were in flower, as that the external air was excluded; which, if it had been admitted, might have assisted the farina in the impregnation of the seed, and thereby have rendered it good; because the same plants, in more favourable seasons, when the free air has been admitted, have produced plenty of good seeds.

ART. IV. *On POISONOUS PLANTS, continued from p. 50.*
Of Water Crowfoot.

EVERY one knows the common Crowfoot of the meadow, which children call Butter Cups: this is of a Burning and caustick quality; but there is one kind of it which has been sometimes eaten, and has never failed to prove a very desperate poison, destroying people in a particular and very frightful manner. This kind is common in watery places, and is perfectly different from all the others, and indeed from all other plants; so that the husbandman will have no difficulty in knowing it by means of this description. The root is composed of a great many fine white threads. The leaves rise from this, a great many together, and they are broad, of a roundish shape, but irregularly divided about the edges into three or more parts: they are smooth, of a shining surface, and of a pale yellowish green colour. The stalk rises up in the midst of these, and is very thick, fleshy, of a pale green colour, two feet high, and divided into a great many branches.

Several leaves grow upon this, which in all respects resemble those from the root, and are like them of a pale green colour. The flowers stand at the top of the branches: they are very small and yellow; and they resemble the common crow-foot flowers in shape, but they are paler coloured. The seeds follow these, and are small and green; they stand clustering together in a kind of oval heads, and easily fall off when touched.

The plant is common about the edges of ponds; and where water has stood in winter. Its leaves are up early in spring, and by their freshness tempt cattle and sometimes men to eat them. They are the causes of many of those disorders which affect cows and oxen in the early season.

Their effect on mankind is terrible: death is a certain consequence; and they die laughing.

Of Yew.—The Yew is a tree too well known to need a long description. Its trunk is covered with a reddish bark. Its branches

branches spread irregularly, and its leaves are composed of many small and narrow ones, which stand regularly on the two sides of a stalk in rows, and are of a blackish green. The fruit is of a particular form and appearance; it is composed of a green button placed in a red juicy cup, resembling the husk of an acorn. The tree is wild in our woods in many places, and is planted also for ornament; being an ever-green.

Children eat the juicy part of the fruit, which happily is not poisonous, or in the least of kin to the rest of the tree. The farmer's care must be to keep his cattle from the leaves. They will frequently eat the clippings thrown out of gardens, or the young shoots when it is planted where they can get at it.

When they eat but little of it, they fall into disorders which often end in their death: but when they swallow it in a larger quantity, they die presently.

A friend says, that the dried leaves only, not the fresh and green leaves, are poisonous.

Of White Rot. This is a little obscure plant, which often grows in great abundance where it is little minded, and is the cause of very terrible mischief to the Farmer. It consists principally of a parcel of stalks which lie upon the ground; and spread themselves about in a very irregular manner. They are as small as a packthread, and of a pale whitish green. Sometimes they rise a little upwards, but rarely. These stalks send down little tufts of fibrous roots in various places; and generally where these shoot from the lower part, there rise also from the upper side, leaves. These are as large as a half-crown-piece, of a round shape, but indented irregularly at the edges. The stalk which supports them, is long and slender; and it is inserted not at the edges, as in most other plants, but in the middle. The colour of the whole leaf is whitish, and it is of a thin substance. The flowers are very small and inconsiderable; they are of a pale colour, and they stand on slender foot-stalks rising from the bosoms of these leaves, or the part where their foot-stalk joins to the main stalk. The seeds are small and brown. This is the whole of a plant, whose low condition renders it unsuspected by the farmer, while it is the ruin of his flock. It is very common in marshy grounds, where it runs close to the bottom, and is hid among the grass.

The sheep find it, though their owner does not perceive it; and they eat of it abundantly among the grass, being pleased with the sharp taste. The consequence is, their falling into that terrible distemper the rot: from which few, that have swallowed any large quantity of this herb, escape.

Of

Of Sun-dew.—This is another of those plants which is fatal to sheep; and which, in the same manner, is often overlooked by those who know its bad effects, by reason of its smallness: but in this they are to be the less excused, because, though a very little plant, its singularity renders it conspicuous. It is but about six inches high, but it strikes the eye at first, by being all over of a red colour; and, upon a closer examination, it surprises yet more, by being covered with large drops of water in the most violent heats: it hence obtained the English name Sun-dew; and it is also called frequently *Rosa Solis*. The root is composed of a few small fibres. The leaves rise in a little tuft eight or ten together. Each is supported on a long slender foot-stalk. They are of the bigness of a silver penny, round, of a red colour, but covered with very long and stiff yellow hairs, upon these rest the great drops of water. The stalk rises in the midst of these, and is about six inches high: it is upright, very slender, and has no leaves upon it. It generally divides into two parts at the top, but otherwise it has no branches. The flowers grow in a row at the top: they are small and white; and they seldom open perfectly. The seed-vessel is short, and the seeds are very small. This plant grows, like the former, on boggy grounds; and it has, like that, a sharp taste, for which the sheep like it. They eat it too frequently, and its effects are the same as those of the former. It brings on the rot; and those which have eat much are incurable.

Of Lousewort.—This is another inhabitant of wet and marshy grounds, which is hurtful to sheep in a terrible manner, though not so fatal as the others. It is a much larger plant than either of those, and easier seen, but it is as often overlooked or disregarded. The root is composed of a vast number of fibres, which run deep in the ground. The leaves rise in little tufts from this, and they are small, and beautifully divided into a number of lesser parts. They are of a fleshy substance, and of a faint green; but very often they are brown, and sometimes reddish. The stalks are weak, and do not stand well upright: they are six or eight inches long, and of a reddish colour. They have many leaves on them, in all respects resembling those which grow from the roots: and at their tops stand the flowers. These are gaping, and of a full red; and they stand in reddish husks.

All our wet meadows abound with this plant. Its juicy substance and taste allure the sheep to eat of it; in those places especially where there is but little grass, which is too common a case where this plant is abundant; and it throws them into many disorders.

disorders. There is no herb that has so speedy, evident, and certain an effect in fouling the blood. The most healthy and clean flock, will, in a fortnight, grow scabby and scurfy upon the skin; their wool will be loose, and they will be overrun with aermin. To remedy this, they must be well cleansed, with soap-suds used warm with a flannel or brush; and the farmer must be careful to remove the sheep under cure to a dry upland pasture. Those are places where the plant cannot grow; and there is no security but that of the creature's not feeding upon it, while under cure.

Of Spurge-Laurel.—This is a shrubby plant of a very pleasing aspect, and worthy to be introduced as an ornament into gardens; but it is one that the farmer should extirpate carefully from his fields when he happens to have it. Its singular appearance renders it easily known, and it is only found on hilly grounds. The root is composed of several long and tough fibres. The stem is as thick as a man's thumb; and it is covered with a brown bark. Toward the bottom it is naked; but there are numerous leaves about the upper part. The whole shrub is three or four feet high; and the leaves grow principally at the extreme ends of the branches. They are long, broad, and of a firm substance: their colour is a deep green, and they in some measure resemble the leaves of the common laurel. The flowers grow in clusters below the leaves, and they are small and green. After them come berries, which when ripe are black: they are of a longish shape, and have a single large kernel. It is frequent on waste ground in hilly places in many parts of England, and flowers very early in spring.

Cattle are tempted by the freshness of the leaves to taste them; and they are so sharp that they inflame their mouths. Some will eat them in small quantities, and the effect is terrible; they bring on the most violent purgings and bloody stools; and often these complaints resist the power of all remedies, and terminate in the creature's death.

A correspondent brings an instance of this in three cows, which had been seen eating the tops of this shrub in April. They all fell into these purgings, and though every method was used that could be thought of, all three died.

No certain remedy can be given for the cure of these disorders; the Husbandman will therefore remember, that, as prevention is his best remedy, he should not fail to root out such hurtful plants.

ART. V. A MODERN UNIVERSAL TABLE. The most copious and authentic that ever was published, of the present State of the real and imaginary Monies of the World, in Europe, Asia, Africa, and America. (Continued from p. 45.)

[From Guthrie's New System of Geography, 4to.]

Southern Parts of EUROPE.

B A S I L.

Zurich, Zug, &c.

			£.	s.	d.	
A Rap	=		0	0	0	$\frac{1}{16}$
3 Rapen	=	a Fening	0	0	0	$\frac{1}{16}$
4 Fenings	=	a Cruitzer	0	0	0	$\frac{1}{16}$
12 Fenings	=	* a Sol	0	0	1	$\frac{1}{16}$
15 Fenings	=	a Coarse Batzen	0	0	1	$\frac{1}{16}$
18 Fenings	=	a Good Batzen	0	0	2	$\frac{1}{16}$
20 Sols	=	* a Livre	0	2	6	
60 Cruitzers	=	a Gulden	0	2	6	
108 Cruitzers	=	a Rix-dollar	0	4	6	

St. G A L L.

Appenzel, &c.

An Heller	=		0	0	0	$\frac{1}{16}$
2 Hellers	=	a Fening	0	0	0	$\frac{1}{16}$
2 Fenings	=	a Cruitzer	0	0	0	$\frac{1}{16}$
12 Fenings	=	* a Sol	0	0	1	$\frac{1}{16}$
4 Cruitzers	=	a Coarse Batzen	0	0	2	$\frac{1}{16}$
5 Cruitzers	=	a Good Batzen	0	0	2	$\frac{1}{16}$
20 Sols	=	* a Livre	0	2	6	
60 Cruitzers	=	a Gould	0	2	6	
102 Cruitzers	=	a Rix-dollar	0	4	3	

B E R N.

Lucern, Neufchatel, &c.

A Denier	=		0	0	0	$\frac{1}{16}$
4 Deniers	=	a Cruitzer	0	0	0	$\frac{1}{16}$
3 Cruitzers	=	* a Sol	0	0	1	$\frac{1}{16}$
4 Cruitzers	=	a Plapert	0	0	1	$\frac{1}{16}$
5 Cruitzers	=	a Gros	0	0	2	$\frac{1}{16}$
6 Cruitzers	=	a Batzen	0	0	2	$\frac{1}{16}$
20 Sols	=	* a Livre	0	2	0	
75 Cruitzers	=	a Gulden	0	2	6	
125 Cruitzers	=	a Crown	0	4	6	

G E N E V A.

Pekay, Bonne, &c.

A Denier	=	-	0	0	0	$\frac{1}{12}$
2 Deniers	=	A Denier current	0	0	0	$\frac{1}{12}$
12 Deniers	=	a Small Sol	0	0	0	$\frac{1}{6}$
12 Deniers cur.	=	a Sol current	0	0	0	$\frac{1}{6}$
12 Small Sols	=	* a Florin	0	0	4	$\frac{1}{2}$
20 Sols current	=	* a Livre current	0	1	3	
10 $\frac{1}{2}$ Florins	=	a Patacon	0	3	11	$\frac{1}{4}$
15 $\frac{3}{4}$ Florins	=	a Croisade	0	5	10	$\frac{1}{2}$
24 Florins	=	a Ducat	0	9	0	

FRANCE and NAVARRE.

Lisle, Cambray, Valenciennes, &c.

A Denier	=	-	0	0	0	$\frac{1}{24}$
12 Deniers	=	a Sol	0	0	0	$\frac{1}{2}$
15 Deniers	=	* a Patard	0	0	0	$\frac{1}{4}$
15 Patards	=	* Piette	0	0	9	$\frac{1}{8}$
20 Sols	=	a Livre Tournois	0	0	10	
20 Patards	=	* a Florin	0	1	0	$\frac{1}{2}$
60 Sols	=	an Ecu of Ex.	0	2	6	
10 $\frac{1}{2}$ Livres	=	a Ducat	0	9	3	
24 Livres	=	a Louis d'Or	1	0	0	

Dunkirk, St. Omers, St. Quintin, &c.

A Denier	=	-	0	0	0	$\frac{1}{24}$
15 Deniers	=	a Sol	0	0	0	$\frac{1}{2}$
15 Deniers	=	* a Patard	0	0	0	$\frac{1}{4}$
15 Sols	=	* a Piette	0	0	7	$\frac{1}{8}$
20 Sols	=	* a Livre Tournois	0	0	10	
3 Livres	=	an Ecu of Ex.	0	2	6	
24 Livres	=	a Louis d'Or	1	0	0	
24 Livres	=	a Guinea	1	1	0	
30 $\frac{1}{2}$ Livres	=	a Moeda	1	7	0	

Paris, Lyons, Marseilles, &c. Bourdeaux, Bayonne, &c.

A Denier	=	-	0	0	0	$\frac{1}{24}$
3 Deniers	=	a Liard	0	0	0	$\frac{1}{8}$
2 Liards	=	a Dardene	0	0	0	$\frac{1}{4}$
12 Deniers	=	a Sol	0	0	0	$\frac{1}{2}$
20 Sols	=	* a Livre Tournois	0	0	10	
60 Sols	=	an Ecu of Ex.	0	2	6	
6 Livres	=	an Ecu	0	5	0	
10 Livres	=	* a Pistole	0	8	4	
24 Livres	=	a Louis d'Or	1	0	0	

PORTUGAL.

P O R T U G A L.

Lisbon, Oporto, &c.

			£.	s.	d.
* A Re	=	-	0	0	$\frac{27}{40}$
10 Rez	=	a Half Vintin	0	000	$\frac{27}{40}$
20 Rez	=	a Vintin	0	0	$1 \frac{7}{8}$
5 Vintins	=	a Testoon	0	0	$6 \frac{3}{4}$
4 Testoons	=	a Crusade of Ex.	0	2	3
24 Vintins	=	a New Crusade	0	2	$8 \frac{2}{3}$
10 Testoons	=	* a Milre	0	5	$7 \frac{1}{2}$
48 Testoons	=	a Moeda	1	7	0
64 Testoons	=	a Joanesa	1	16	0

SPAIN and CATALONIA.

Madrid, Cadiz, Seville, &c. New Plate.

A Maravedie	=	-	0	0	$\frac{43}{272}$
2 Maravedies	=	a Quartil	0	0	$\frac{43}{136}$
34 Maravedies	=	a Rial	0	0	$5 \frac{3}{8}$
2 Rials	=	a Pistarine	0	0	$10 \frac{3}{4}$
8 Rials	=	* a Piafre of Ex.	0	3	7
10 Rials	=	a Dollar	0	4	6
375 Maravedies	=	* a Ducat of Ex.	0	4	$11 \frac{1}{2}$
32 Rials	=	* a Pistole of Ex.	0	14	4
36 Rials	=	a Pistole	0	16	9

Gibraltar, Malaga, Denia, &c. Velon.

* A Maravedie	=	-	0	0	$\frac{27}{272}$
2 Maravedies	=	an Ochavo	0	0	$\frac{23}{136}$
4 Maravedies	=	a Quartil	0	0	$\frac{23}{68}$
34 Maravedies	=	* a Rial Velon	0	0	$2 \frac{7}{8}$
15 Rials	=	* a Piafre of Ex.	0	3	7
512 Maravedies	=	a Piafre	0	3	7
60 Rials	=	* a Pistole of Ex.	0	14	4
2048 Maravedies	=	a Pistole of Ex.	0	14	4
70 Rials	=	a Pistole	0	16	9

Barcel ona, Saragossa, Valencia, &c. Old Plate.

A Maravedie	=	-	0	0	$\frac{27}{128}$
16 Maravedies	=	a Soldo	0	0	$3 \frac{3}{8}$
2 Soldos	=	a Rial Old Plate	0	0	$6 \frac{3}{4}$
20 Soldos	=	* a Libra	0	5	$7 \frac{1}{2}$
24 Soldos	=	* a Ducat	0	6	9
16 Soldos	=	* a Dollar	0	4	6
22 Soldos	=	* a Ducat	0	6	$2 \frac{1}{4}$
21 Soldos	=	* a Ducat	0	5	$10 \frac{7}{8}$
60 Soldos	=	a Pistole	0	16	9

I T A L Y.

GENOA. *Novi, St. Remo, &c.* CORSICA. *Bastia, &c.*

			£.	s.	d.
A Denari	=	-	0	0	0 $\frac{1}{16}$
12 Denari	=	a Soldi	0	0	0 $\frac{1}{8}$
4 Soldi	=	a Chevalet	0	0	1 $\frac{1}{16}$
20 Soldi	=	* a Lire	0	0	8 $\frac{1}{16}$
30 Soldi	=	a Testoon	0	1	0 $\frac{1}{16}$
5 Lires	=	a Croisade	0	3	7
115 Soldi	=	* a Pezzo of Ex.	0	4	2
6 Testoons	=	a Genouine	0	6	2
20 Lires	=	a Pistole	0	14	4

PIEDMONT, SAVOY, and SARDINIA.

Turin, Chamberry, Cagliari, &c.

A Denari	=	-	0	0	0 $\frac{1}{16}$
3 Denari	=	a Quatrini	0	0	0 $\frac{1}{8}$
12 Denari	=	a Soldi	0	0	0 $\frac{1}{4}$
12 Soldi	=	* a Florin	0	0	9
20 Soldi	=	* a Lire	0	1	3
6 Florins	=	a Scudi	0	4	6
7 Florins	=	a Ducatoon	0	5	3
13 Lires	=	a Pistole	0	16	3
16 Lires	=	a Louis d'Or	1	0	0

Milan, Modena, Parma, Pavia, &c.

A Denari	=	-	0	0	0 $\frac{1}{16}$
3 Denari	=	a Quatrini	0	0	0 $\frac{1}{8}$
12 Denari	=	a Soldi	0	0	0 $\frac{1}{4}$
20 Soldi	=	* Lire	0	0	8 $\frac{1}{16}$
115 Soldi	=	a Scudi current	0	4	2 $\frac{1}{16}$
117 Soldi	=	* a Scudi of Ex.	0	4	3 $\frac{1}{16}$
6 Lires	=	a Philip	0	4	4 $\frac{1}{16}$
22 Lires	=	a Pistole	0	16	0
23 Lires	=	a Spanish Pistole	0	16	9

Leghorn, Florence, &c.

A Denari	=	-	0	0	0 $\frac{1}{16}$
4 Denari	=	a Quatrini	0	0	0 $\frac{1}{8}$
12 Denari	=	a Soldi	0	0	0 $\frac{1}{4}$
5 Quatrini	=	a Craca	0	0	0 $\frac{1}{16}$
8 Cracas	=	a Quilo	0	0	5 $\frac{1}{16}$
20 Soldi	=	* a Lire	0	0	8 $\frac{1}{16}$
6 Lires	=	a Piafre of Ex.	0	4	2 $\frac{1}{16}$
7½ Lires	=	a Ducat	0	5	2 $\frac{1}{16}$
22 Lires	=	a Pistole	0	15	6

R O M E.

Civita Vecchia, Ancona, &c.

A Quatrini	=	-	0	0	0	$\frac{2}{15}$
5 Quatrini	=	a Bayoc	0	0	0	$\frac{1}{3}$
8 Bayocs	=	a Julio	0	0	6	$\frac{1}{2}$
10 Bayocs	=	a Stamp Julio	0	0	7	$\frac{1}{2}$
24 Bayocs	=	a Testoon	0	1	6	
10 Julios	=	a Crown current	0	5	0	
12 Julios	=	* a Crown Stamp	0	6	0	
18 Julios	=	a Chequin	0	9	0	
31 Julios	=	a Pistole	0	15	6	

N A P L E S.

Gaieta, Capua, &c.

A Quatrini	=	-	0	0	0	$\frac{2}{15}$
3 Quatrini	=	a Grain	0	0	0	$\frac{2}{15}$
10 Grains	=	a Calin	0	0	4	$\frac{1}{15}$
40 Quatrini	=	a Paulo	0	0	5	$\frac{1}{15}$
20 Grains	=	a Tarin	0	0	8	
40 Grains	=	a Testoon	0	1	4	
100 Grains	=	a Ducat of Ex.	0	3	4	
23 Tarins	=	a Pistole	0	15	4	
25 Tarins	=	a Spanish Pistole	0	16	9	

S I C I L Y and M A L T A.

Palermo, Messina, &c.

A Pichila	=	-	0	0	0	$\frac{1}{15}$
6 Pichili	=	a Grain	0	0	0	$\frac{1}{15}$
8 Pichili	=	a Ponti	0	0	0	$\frac{1}{15}$
10 Grains	=	a Carlin	0	0	1	$\frac{1}{15}$
20 Grains	=	a Tarin	0	0	3	$\frac{1}{15}$
6 Tarins	=	* a Florin of Ex.	0	1	6	$\frac{1}{15}$
13 Tarins	=	a Ducat of Ex.	0	3	4	
60 Carlins	=	* an Ounce	0	7	8	$\frac{1}{15}$
2 Ounces	=	a Pistole	0	15	4	

Bologna, Ravenna, &c.

A Quatrini	=	-	0	0	0	$\frac{1}{15}$
6 Quatrini	=	a Bayoc	0	0	0	$\frac{1}{15}$
10 Bayocs	=	a Julio	0	0	6	
20 Bayocs	=	* a Lire	0	1	0	
3 Julios	=	a Testoon	0	1	6	
85 Bayocs	=	a Scudi of Ex.	0	4	3	
105 Bayocs	=	a Ducatoon	0	5	3	
100 Bayocs	=	a Crown	0	5	0	
31 Julios	=	a Pistole	0	15	6	

ART. VI. *Useful Hints for learning to Swim.* By Benjamin Franklin, LL. D. F. R. S. *In a Letter to a Friend.*

Dear Sir,

I Cannot be of opinion with you, that it is too late in life for you to learn to swim; the river near the bottom of your garden affords a most convenient place for the purpose; and, as your new employment requires your being often on the water, of which you have such a dread, I think you would do well to make the trial; nothing being so likely to remove those apprehensions, as the consciousness of an ability to swim to the shore in case of an accident, or of supporting yourself in the water till a boat could come to take you up.

I do not know how far corks or bladders may be useful in learning to swim, having never seen much trial of them. Possibly they may be of service in supporting the body while you are learning what is called the stroke, or that manner of drawing in and striking out the hands and feet that is necessary to produce progressive motion. But you will be no swimmer till you can place some confidence in the power of the water to support you; I would therefore advise the acquiring that confidence in the first place, especially as I have known several who, by a little of the practice necessary for that purpose, have insensibly acquired the stroke, taught as it were by nature.

The practice I mean is this: chusing a place where the water deepens gradually, walk coolly into it till it is up to your breast, then turn round your face to the shore, and throw an egg into the water, between you and the shore; it will sink to the bottom, and be easily seen there, as your water is clear. It must lie in the water so deep as that you cannot reach it to take it up but by diving for it. To encourage yourself, in order to do this, reflect that your progress will be from deeper to shallower water, & that at any time you may, by bringing your legs under you, and standing on the bottom, raise your head far above the water. Then plunge under it with your eyes open, throwing yourself towards the egg, and endeavouring, by the action of your hand and feet against the water, to get forward till within reach of it. At this attempt you will find that the water buoys you up against your inclination; that it is not so easy a thing to sink as you imagined; that you cannot, but by active force, get down to the egg. Thus you feel the power of the water to support you, and learn to confide in that power, while your endeavours to overcome it, and to reach the egg, teach

teach you the manner of acting on the water with your feet and hands, which action is afterwards used in swimming to support your head higher above water, or to go forward through it.

I would the more earnestly press you to the trial of this method, because, though I think I satisfied you that your body is lighter than water, and that you might float in it a long time with your mouth free for breathing, if you would put yourself in a proper posture, and would be still, and for near struggling, yet, till you have obtained this experimental confidence in the water, I cannot depend on your having the necessary presence of mind to recollect that posture, and the directions I gave you relating to it. The surprise may put all out of your mind; for, though we value ourselves on being reasonable, knowing creatures, reason and knowledge seem, on such occasions, to be of little use to us: and the brutes, to whom we allow scarce a glimmering of either, appear to have the advantage of us.

I will, however, take this opportunity of repeating those particulars to you, which I mentioned in our last conversation, as, by perusing them at your leisure, you may possibly imprint them so in your memory, as on occasion to be of some use to you.

First, That though the legs, arms, and head, of a human body, being solid parts, are specifically somewhat heavier than fresh water, yet the trunk, particularly the upper part, from its hollowness, is so much lighter than water, as that the whole of the body, taken together, is too light to sink wholly under water, but some part will remain above, until the lungs become filled with water; which happens from drawing water into them instead of air, when a person, in the fright, attempts breathing, while the mouth and nostrils are under water.

2dly, That the legs and arms are specifically lighter than salt water, and will be supported by it; so that a human body would not sink in salt water, though the lungs were filled as above, but from the greater specific gravity of the head.

3dly, That, therefore, a person throwing himself on his back in salt water, and extending his arms, may easily lie so as to keep his mouth and nostrils free for breathing; and by a small motion of his hands, may prevent turning, if he should perceive any tendency to it.

4thly, That in fresh water, if a man throws himself on his back, near the surface, he cannot long continue in that situation, but by a proper action of his hands on the water. If he uses no such action, the legs and lower part of the body will

will gradually sink till he comes into an upright position, in which he will continue suspended, the hollow of the breast keeping the head uppermost.

5thly, But if in this erect position the head is kept upright above the shoulders, as when we stand on the ground, the immersion will, by the weight of that part of the head that is out of the water, reach above the mouth and nostrils, perhaps a little above the eyes, so that a man cannot long remain suspended in the water with his head in that position.

6thly, The body continued suspended as before, and upright, if the head be leaned quite back, so that the face looks upwards, all the back part of the head being then under water, and its weight consequently in a great measure supported by it, the face will remain above water quite free for breathing, will rise an inch higher every inspiration, and sink as much every expiration, but never so low as that the water may come over the mouth.

7thly, If therefore a person, unacquainted with swimming, and falling accidentally into the water, could have presence of mind sufficient to avoid struggling and plunging, and to let the body take this natural position, he might continue long safe from drowning, till perhaps help would come. For as to the cloaths, their additional weight, while immersed, is very inconsiderable, the water supporting them, though, when he comes out of the water, he would find them heavy indeed.

But, as I said before, I would not advise you, or any one, to depend on having this presence of mind on such an occasion, but learn fairly to swim, as I wish all men were taught to do in their youth; they would, on many occurrences, be the safer for having that skill, and on many more the happier, as freer from painful apprehensions of danger, to say nothing of the enjoyment in so delightful and wholesome an exercise. Soldiers particularly should, methinks, all be taught to swim; it might be of frequent use either in surprizing an enemy, or saving themselves. And if I had now boys to educate, I should prefer those schools (other things being equal) where an opportunity was afforded for acquiring so advantageous an art, which, once learnt, is never forgotten.

B. FRANKLIN.

ART. VII. *Directions concerning WARRENS.*

A Warren, as well as other things, requires a proper place and particular situation: it should be upon a small ascent, exposed to the east or south; and the soil that is most suitable

suitable to it, is that which is sandy; for to make a warren in a strong clayey ground, would be the way to hinder the rabbits from making themselves burroughs with ease: and if the warren should be moorish ground, you would reap but little benefit from them, as being injurious to these animals.

A warren, properly speaking, is a coppice which is cut every ten, twelve, or fifteen years, according as the owner thereof thinks fit: and if it be made near his house, it is the better; otherwise he must be content to have it according as the situation of the ground will allow.

He ought to take all the due precautions that his warren be so contrived, that the rabbits may easily habituate themselves to it; but how to succeed therein, men's sentiments differ: ancient authors, who have wrote upon this subject, say, that it must be surrounded with walls: but others think this extravagance, and that the expence will by much exceed the profit; and indeed we find not many that are so inclosed, but every one is at his own liberty as to that.

Mr. Chomel's opinion is, that a warren ought to be encompassed by a good ditch; and though such an inclosure cannot hinder the rabbits from going out, at least, if it be not filled with water, yet it may be hoped no damage may accrue therefrom, when once they are accustomed to the place, to which they will keep, though there be neither walls nor ditches to hem them in. He that makes a warren is at liberty to make it as large as he pleases, the extent is not to be limited; only this may be observed, that the more spacious it is, the more it will be to the owner's profit.

I do not know, says the same author, how those who have wrote before me upon the subject of warrens, have given their opinion, that it ought to be surrounded with ditches full of water: they must either be acquainted with the nature of rabbits, or they must not: if they were, why, since they know moist moisture to be injurious to these animals, they should advise a thing that most contributes to it by bringing water about by the means of ditches; is not this acting against the course of nature? And if they were not sensible of the matter, they could have no reason to prescribe what must naturally tend to the detriment of a warren; and therefore without troubling themselves about what will become of the rabbits that are put into the warren, let them make one in such a situation as is before described, and surrounded with good dry ditches, and it will be sufficient.

If you have but few rabbits to stock your warren with, you must

must exercise the more patience, to wait for the pleasure and profit you may expect from it; such things there are in this world, time is required before men can make their advantages of them, therefore you must wait; a warren is of such a nature, that it cannot too soon abound with subjects that are proper for it, so as to be in a condition to yield good profit to the owner: those who desire to have a warren soon, ought to furnish themselves with a certain number of does big with young: these animals, by their young ones, will multiply in time; but they must not for the first two years be hunted, and but a little the third; but those who have most knowledge in this kind of management, take care to stock their warren, by the means of a clapper of conies, and it is kept up the better when this is done.

ART. VII. *An Attestation, made in Ireland, interesting to every person concerned in Agriculture.*

County of Mayo, } **BY** Neal O'Donel, Esq; one of his
to wit. } Majesty's Justices of the Peace for
said County. — This day came before me Dominick Kearin,
plowman to Owen O'Malley, of Melcombe, in said county,
Esq; and made oath on the holy Evangelists, that on the 22d
day of April, 1779, he sowed ten pounds weight of wheat,
in fifteen perches of land, at Rossinuney, in said county, and
that the same was reaped the 22d day of August following;
and that by order of his said master he attended the reaping,
threshing, and cleaning thereof, and that the said ten pounds
did produce four hundred and eight pounds of clean wheat;
although the corn almost totally failed to grow in three perches
of the said land, where spring-water broke up, and that the
produce was much larger corn than the seed. I know the
deponent. **NEAL O'DONEL.**

Sworn before me, at Newport,

Feb. 12th, 1780,

DOM. KEARIN.

I do hereby certify, that I have surveyed the small plot at
Rossinuney, where the Siberian wheat grew, as above-men-
tioned, and the same contains fifteen perches of plantation
measure. **THO. KELLY.**

Newport, Feb. 12, 1780.

I believe the contents of the above affidavit and certificate
are strictly true, of which I thought it incumbent on me to
give

give this public information, as tending to produce much general good. I have none of the above wheat to spare for this year, but presume it may be imported from Archangel by way of Holland, or otherwise, time enough for next year's sowing; and would recommend it to all seedsmen to provide a sufficient quantity, to enable gentlemen to make experiments in Agriculture, so highly useful to their country, and that one day may prove an object of the greatest acquisition.

OWEN O'MALLEY.

ART. VIII. *On the superior advantage of DRILL Husbandry, as well in saving the Seed, as increasing the Crop.*

IN A LETTER

To the SECRETARY of the BATH SOCIETY.

SIR, —, near Saxmundham, Feb. 24th, 1780.

COMMON Farmers are generally too much prejudiced in favour of sowing large quantities of seed. They absurdly imagine that the more is put into ground the larger will be their crops, without considering how, or in what manner, that seed is distributed, or secured from the depredations of vermin, frost, &c. They seem insensible that where the seed lodges too thick, there is not a sufficient quantity of nutritive particles in the earth to support a proportionable number of plants; neither do they seem aware that grain sown, and not properly covered, becomes the greater part of it a prey to birds and vermin. These are some of the great inconveniences attending the broad-cast mode of sowing; and to remedy these, the Drill Husbandry has been introduced; which in general has succeeded so well, with every attentive observer, that few, if any, who have once proved its utility, have ever returned back to the absurd practice of their fore-fathers.

By sowing in drills, the seed is lodged at equal and proper depths, and secured from birds, &c. It is also distributed in such a manner, that the roots of each plant have proper room for spreading in search of that nourishment which can alone render it vigorous, and occasion it to send forth a large number of stems or ears. Every person who has observed the plants of wheat, barley, or oats, that stood singly, need not be told that such plants are more luxuriant, and their produce greater and better, than where they stand thick, and have not room for the necessary expansion of root and stem. Instead of two or three

M 2

stems,

stems, we frequently see, in drilled crops of wheat, from twelve to eighteen springing from one root, and bearing fairer larger ears; this is also the case with barley and oats, where the plants stand singly. Plants of lucerne, saintfoin, and broad clover, standing single, grow almost to the size of shrubs.

No two plants of grain should stand nearer than six inches to each other; at this distance, the crop would be much better and greater than in the usual mode of sowing.

I once saw a field in Norfolk, the soil of which was equal, neither strong nor light, but of a good quality. It was a turnip fallow, and had three plowings during the summer. This field was laid into broad ridges about twelve feet wide; a furrow being drawn between them. These ridges were sown broadcast, and set by the dibble, alternately, in the same week, being the 1st of October. The field contained just six acres. On the three acres sown broadcast was thrown nine pecks of seed per acre; on the other part only three pecks was set per acre. The distance of the rows was nine inches; the holes five inches apart in each row; the grains dropp'd three inches deep; and a bush-harrow being immediately drawn over the land, closed up all the holes. In May following, the difference in the two crops was strikingly visible. The one irregular; some spots vacant, and others crowded. The other very regular and beautiful; the ground between the rows was cleared of weeds with a seven-inch turnip hoe; the stems from each root were numerous, stood erect, and had the finest healthy verdure.

At harvest, the ears of the set part were considerably longer and larger than the other; they were also more numerous and heavy. Each part was reaped and threshed by itself; the broadcast yielded only twenty-one pecks per acre, the set part thirty pecks, and the grain far superior.

If such manifest proofs as these are, of the superiority of *setting* wheat, will not convince Farmers, nothing can do it. By making the same experiments, they might have the same success; they would then find *that* to be true in practice, which so many of them, through prejudice, laugh at in theory.

Until Farmers will attend a little to the *reasonableness* of their practice, no general improvements can be expected. If they are successful in a wrong method, the merit is not theirs, but ought to be attributed to the land, which in such instances would, under any circumstances, reward their labour. And of this the Farmer may be assured, that wherever he gets a tolerable

able crop by a floverly mode of Husbandry the same land would richly pay him for better culture.

The irrationality of throwing away such unnecessary quantities of seed as are generally sown is so great, that I am surpris'd a set of men, who in many other respects prove that they possess as much good useful sense as the rest of mankind, should still continue so absurd a practice.

Would Farmers sow *less seed*, and by drilling disperse it equally over their lands, and destroy *more weeds*, their crops would be much larger and better. But we see in most counties, that, as though the earth was not prolific enough of weeds, Farmers will let them stand and seed in their dunghills, and carry a future crop on their land with their manure. How ridiculous it is to hear such men complain of their crops being weedy, when they have taken all the pains in their power to propagate them.

I am yours, &c.

A SUFFOLK FARMER.

ART. IX. *To preserve Turnips as Feed for Cattle.*

IN A LETTER

To the SECRETARY of the BATH SOCIETY.

IN answer to your enquiry, whether we had yet adopted any method of preserving turnips from the frost, or for feeding cattle late in the spring, and if so, what those methods were; I beg leave to observe, that nothing of this kind is yet come into general practice in this county.

With respect to preserving turnips from such severe frosts as we had this last winter, especially when there has not been snow enough to cover them, I believe it would be utterly impracticable, unless the turnips were drawn previous to such frosts. This would, on the whole, never answer the Farmer's purpose, as the certain trouble and expence of housing or or stacking them would far exceed the advantage even in a hard season; and, in mild winters, would be intirely lost.

To preserve them for late spring feed is not so difficult an undertaking. Divers methods have been tried; and among the rest, that of drawing and burying them in sand; but this has not answered, for the following, among other reasons.—Turnips are a very juicy root; and although sand be perfectly dry when thrown among them, yet when packed together in large heaps they naturally sweat, and communicate a moisture, which, with the hot quality of the sand, raises a still greater

greater heat ; and as warmth and moisture are two qualities which greatly promote vegetation, the vegetation of those roots is the first thing that renders them useless. They will grow till the growing quality is exhausted, and then, by putrefying, become quite unfit for food.

The best method of preserving them that I have heard of, and which has been tried with success by some of our best Farmers, is, to stack them up in dry straw ; a load of which is sufficient to preserve 40 tons of turnips. The method is easy, and as follows :

After drawing your turnips in February, cut off the tops and tap roots (which may be given to sheep) and let them lay a few days in the field, as no weather will then hurt them. Then, on a layer of straw next the ground, place a layer of turnips two feet thick ; and then another layer of straw, and so on alternately, till you have brought the heap to a point. Care must be taken to turn up the edges of the layers of straw, to prevent the turnips from rolling out ; cover the top well with long straw, and it will serve as a thatch for the whole. In this method, as the straw imbibes the moisture exhaled from the roots, all vegetation will be prevented, and the turnips will be nearly as good in May as when first drawn from the field. If straw be scarce, old haulm or stubble will answer the same purpose.

But to prevent this trouble and expence, perhaps Farmers in all counties would find it most to their interest to adopt the method used by our neighbours the Norfolk Farmers, which is, to continue sowing turnips to the latter end of August, by which means their late crops remain good in the field till the latter end of April, and often till the middle of May.

The advantages of having turnips good till the spring feed is generally ready, are so obvious and so great, that many of our Farmers (although at first prejudiced against the practice) are now come into it, and find their account in so doing.

I wish these few hints may prove in any degree useful, and am, wishing all possible success to the Bath Society,

Your very humble servant,

Suffolk, March 1, 1780.

A GENTLEMAN FARMER.

ART. X. *On Planting Trees to keep off the Winds.*

TO guard against the common accidents, should be at once the attention of the Landlord and the farmer ; the interest of the former being concerned in the well doing of the latter.

High

High winds often do great damage to the farmer, to his dwelling, his ricks, fruit trees, hops, corn, &c, as is often found in countries that lie very much exposed; to prevent which, trees near the building and the yard seem at once the most obvious, as well as secure defence, by breaking the force of the wind; planting them at such a distance, that they may neither drop on them or prevent the rays of the sun being thrown on the house, &c. If placed too near, the fall of the trees themselves might do mischief also to the buildings they fall against. Of all trees, if nature has not supplied the want, elm will best answer the purpose.

For hops which, above all other plants, receive most damage from the winds, trees are likewise the best security, or high hedges of white-thorn; some of which, particularly about Farnham, I have seen above twelve feet high in the summer, impervious to the rays of the sun, or a common animal, as a dog, cat, hare, &c.

C. WILLIAMS.

ART. XI. *Receipt for Swelled Legs.*

BATHE the legs every morning in hot brine from salted meat. This was ordered by Mr. Palmer, Surgeon to St. Thomas's Hospital, for Lord Chesterfield, (after he had consulted Dr. Mead, Brockholm, and Arbuthnot, without success) for a swelling in his legs from relaxation, which was cured by this method in three weeks.

It may be necessary for the patient to take two or three doses of physic during the bathing.

OPISER.

ART. XII. *Caution in a Sore Throat.*

PERSONS afflicted with a sore throat are advised to drink all their liquors cold. Water with a toast is perhaps the best liquor that can be made use of: This advice has been successfully followed by

HUNDREDS.

ART. XIII. *On Cultivation of Potatoes.*

THE potatoe is an extremely useful root, and one that may very properly be cultivated in fields. It is indeed fitter for the great extent and plain fashion of a field, than for the narrow

narrow compass and divided beds of a garden, when we consider its prodigious spreading. 'Tis but lately we have informed ourselves properly of its culture; and the more we know of that, the more reason we see to banish it the garden, and introduce it into the field. It is hardy enough to bear the exposure, and it requires no great charge in the culture and management; why then should we limit it to the garden, every particular speaks for its being given into the hands of the Farmer, especially when near large towns, though every where there will be a great demand. We shall therefore lay him down such a method for their management, that he cannot fail, by observing it strictly, to meet with a success that will make him keep up the culture of this root at all times.

The potatoe is a plant of a singular form & manner of growth: the botanical writers refer it to the nightshade kind, calling it nightshade with the tuberos eatable root. It is singular, that one of the most innocent plants in the world should belong to a class naturally and generally poisonous, but these are matters wherewith the Farmer has no concern.

The root of the potatoe is composed of several large roundish lumps, joined to one another by means of strings, and spreading a great way in every direction. The stalks are numerous, three feet high, branched, and full of leaves; these are divided into several parts, or each is composed of several pairs of smaller, with an odd one at the end, but the division or disposition is irregular. The flowers are large, and either of a dusky purplish hue, or white, this being a trifling variety, from which, as also the colour of the outside skin of the roots, the potatoe is divided into two kinds, under the name of the red and white: the fruit is a large berry.

We had this plant originally from North-America, and at this time raise it in vast plenty, and to very great profit. It is in a manner the food of the common people of Ireland; and is cultivated in Lancashire, and some other parts of England, in vast quantities. Our intent is to make it more universal.

[To be continued.]



T H E
FARMER'S MAGAZINE.

A P R I L, 1780.

A DISSERTATION *on the Progress and present State*
AGRICULTURE. [Continued.]

E U R O P E.

IF the art of navigation arose from fishing, as that of war did from the chase; the navy then owes its existence to commerce. The desire of gain first induced us to make voyages; and one world hath been conquered to enrich another. This object of conquest has been the foundation of commerce; in order to support commerce, naval forces have become necessary, which are themselves produced by the trading navigation.

The Portuguese attempted by degrees to double the African coast. In 1497, Vasco de Gama surmounted this barrier, and returning by the eastern coast of Africa, arrived by a passage of twelve hundred leagues at the coast of Malabar, where all the treasures of the richest countries of Asia were to be circulated; and here the Portuguese displayed all their conquests.

While this nation made itself master of the articles of trade, the Spaniards seized upon that which purchases them, the mines of gold and silver. These metals became not only a standard to regulate the value, but also the object of commerce. In this double use they soon engrossed all the rest. All nations were in want of them to facilitate the exchange of their commodities, and obtain the conveniencies they stood in need of. The luxury and circulation of money in the south of Europe, changed the nature as well as the direction of commerce, at the same time that it extended its bounds.

But the two nations that had subdued the East and West Indies, neglected arts and agriculture. They imagined every
VOL. V. N thing

thing was to be obtained by gold, without considering that it is labour alone that procures it : they were convinced, though late, and at their own expence, that the industry which they lost, was more valuable than the riches they acquired; and the Dutch taught them this severe instruction.

The Spaniards, though possessed of all the gold in the world, remained or became poor; the Dutch presently acquired riches, without either lands or mines. Holland is a nation at the service of all the rest, but who sells her services at a high price. As soon as she had taken refuge in the midst of the sea, with industry and freedom, which are her tutelary gods, she perceived that she had not a sufficient quantity of land to support the sixth part of her inhabitants. She then chose the whole world for her domain, and resolved to enjoy it by her navigation and commerce. She made all lands contribute to her subsistence; and all nations supply her with the conveniencies of life. Holland became the staple of all commercial powers rich or poor. Not satisfied with inviting all other nations, she visited them herself, in order to procure from one what was wanted by another; to convey to the North, the merchandise of the South; to sell to the Spaniard ships for cargoes, and to exchange upon the Baltic wine for wood. She imitated the stewards and farmers of large estates, who, by the immense profits they make in them, are enabled sooner or later to buy them up.

Every circumstance was favourable to the rise and progress of the commerce of this republic. Its position on the borders of the sea, at the mouths of several great rivers; its proximity to the most fertile or best cultivated lands of Europe; its natural connections with England and Germany, which defended it against France; the little extent and fertility of its own territory, which obliged the inhabitants to become fishermen, sailors, brokers, bankers, carriers, and commissaries; in a word, to endeavour to live by industry for want of territory. Moral causes contributed with those of the climate and the soil, to establish and advance its prosperity. The liberty of its government, opened an asylum to all strangers dissatisfied with their own; the freedom of its religion, permitted a public and quiet profession of all other modes of worship; in short, this commercial republic found out the secret of availing itself of all events, and of making even the calamities and vices of other nations concur in advancing its felicity. The English were the first to perceive that traffic might be carried

carried on without the interposition of the Dutch. The English first considered commerce as the proper science, and support of an enlightened, powerful, and even a virtuous people. They considered it rather as an improvement of industry than an acquisition of enjoyments; rather as an encouragement and a source of activity among the people, than a promoter of luxury and magnificence. Invited to trade by their situation, this became the spirit of their government, and the means of their ambition.

The French, situated under as favourable a sky, and upon as happy a soil, have for a long time flattered themselves with the idea that they had much to give to other nations, without being under a necessity of asking scarce any return.

The natural volatility of their national character and its propensity to trifling pursuits, hath brought treasures to the state, by the taste that has fortunately prevailed for its fashions. Like to that light and delicate sex, which teaches and inspires us with a taste for dress, the French reign in all courts, at least, by the toilet; and their art of pleasing is one of the mysterious sources of their fortune and power. Other nations have subdued the world by those simple and rustic manners, which constitute the virtues that are fit for war; to them it was given to reign over it by their vices. It is no longer a people immersed in poverty that becomes formidable to a rich nation. Power is at present an attendant on riches, because they are no longer the fruit of conquest, but the produce of constant labour, and of a life spent in perpetual employment. Gold and silver corrupt only those indolent minds which indulge in the delights of luxury, upon that stage of intrigue and meanness, that is called greatness. But these metals employ the hands and arms of the people; they excite a spirit of agriculture in the fields; of navigation in the maritime cities; and in the center of the state they lead to the manufacturing of arms, cloathing, furniture, and the construction of buildings. A spirit of emulation exists between man and nature: they are perpetually improving each other. The people are formed and fashioned by the arts they profess.

If there are some occupations which soften and degrade the human race, there are others by which it is hardened and repaired. If it be true that art renders them unnatural, they do not, at least, propagate in order to destroy themselves, as among the barbarous nations in heroic times. It is certainly an easy, as well as a captivating subject, to describe the Romans,

with the single art of war, subduing all the other arts, all other nations indolent or commercial, civilized or savage; breaking or despising the vases of Corinth, more happy with their gods made of clay, than with the golden statues of their worthless emperors. But it is a more pleasing, and perhaps, a nobler sight, to behold all Europe peopled with laborious nations, who are continually sailing round the globe, in order to cultivate and render it fit for mankind; to see them animate, by the enlivened breath of industry, all the regenerating powers of nature; seek in the abyss of the ocean, and in the bowels of rocks, for new means of subsistence, or new enjoyments; stir and raise up the earth with all the mechanic powers invented by genius; establish between the two hemispheres, by the happy improvements in the arts of navigation, a communication of flying bridges, as it were, that re-unite one continent to the other; pursue all the tracks of the sun, overcome its annual barriers, and pass from the tropics to the poles upon the wings of the wind; in a word, to see them open all the streams of population and pleasure, in order to pour them upon the face of the earth through a thousand channels. It is then, perhaps, that the divinity contemplates his work with satisfaction, and does not repent himself of having made man.

Commerce, which naturally arises from agriculture, returns to it by its own tendency and by the circulation it occasions: thus, the rivers return to the sea, which has produced them by the exhalations of its waters into vapours, and by the fall of those vapours when changed into waters. The quantity of gold bought by the transportation and consumption of the fruits of the earth, returns into its bosom, and produces all the necessities of life, and the materials of commerce. If the lands are not cultivated, all commerce is precarious, because it is deprived of its principal supplies, which are the productions of nature. Nations that are only maritime or commercial enjoy, it is true, the fruits of commerce; but the origin of it is to be found among those people that are skilled in the cultivation of land. Agriculture is, therefore, the chief and real opulence of a state. The Romans in the intoxication of their conquests, by which they had obtained the possession of all the earth without cultivating it, were ignorant of this truth. It was unknown to the Barbarians, who, destroying by the sword an empire that had been established by it, abandoned to slaves the cultivation of the lands, of which they reserved to themselves the fruits and the property. Even in the age
subsequent

subsequent to the discovery of the East and West Indies, this truth was unattended to; whether in Europe the people were too much engaged in wars of ambition or religion to consider it; or, whether the conquests made by Portugal and Spain beyond the seas, having brought us treasures without labour, we contented ourselves with enjoying them by encouraging luxury and the arts, before any method had been thought of to secure these riches.

But the time came, when plunder ceased, having no object on which it could be exercised. When the conquered lands in the new world, after having been much contested for, were divided, it became necessary to cultivate them, and to support the colonists who settled there. As these were natives of Europe, they cultivated for that country such productions as it did not furnish, and required in return such provisions as custom had made natural to them. In proportion as the colonies were peopled, and that the number of sailors and manufacturers increased with the increase of productions, the lands must necessarily furnish a greater quantity of subsistence for the increase of population, and an augmentation of indigenous commodities, for foreign articles of exchange and consumption. The laborious employment of navigation, and the spoiling of provisions in the transport, causing a greater loss of materials and produce, it became necessary to cultivate the earth with the greatest care and assiduity, in order to render it more fruitful. The consumption of American commodities, far from lessening that of European productions, served only to increase and extend it upon all the seas, in all the ports, and in all the cities where commerce and industry prevailed. Thus the people who were the most commercial, necessarily became at the same time the greatest promoters of agriculture.

England first conceived the idea of this new system. She established and encouraged it by honours and premiums proposed to the planters. A medal was struck and presented to the Duke of Bedford, with the following inscription; *for having planted Oak*. Triptolemus and Ceres were adored in antiquity only from similar motives; and yet temples and altars are still erected to indolent monks. The God of nature will not suffer that mankind should perish. He hath implanted in all noble and generous minds, in the hearts of all people and of enlightened Monarchs, this idea, that labour is the first duty of Man, and that the most important of all labours is that of cultivating the land. The reward that attends agriculture,
the

the satisfying of our wants, is the best encomium that can be made of it. If I had a subject who could produce two blades of corn instead of one, said a Monarch, I should prefer him to all the men of political genius in the state. How much it is to be lamented that such a King and such an opinion are merely the fiction of Swift's brain. But a nation that can produce such writers, necessarily confirms the truth of this sublime idea; and accordingly we find, that England doubled the produce of its cultivation.

The example of the English has excited all other nations that were sensible of the value of industry, to direct it to its true origin and primary destination. After the peace of Aix-la-Chapelle, the French, who under the administration of three Cardinals had scarce been allowed to turn their thoughts to public affairs, ventured at length to write on subjects of importance, and general utility. The undertaking of an universal Dictionary of Arts and Sciences, brought every object to view, and exercised the thoughts of every man of genius and knowledge. Montesquieu wrote the Spirit of Laws, and the boundaries of genius were extended. Natural History was written by a French Pliny, who surpassed Greece and Rome in the knowledge and description of nature; this history, bold and sublime as its subject, warmed the imagination of every reader, and powerfully excited them to such enquiries, as a nation cannot relinquish, without returning into a state of barbarism. In less than twenty years, the French nation became sensible of their real interests. They communicated their knowledge to government, and agriculture, if it was not encouraged by rewards, was, at least, patronized by some ministers.

Germany hath felt the happy influence of that spirit of information and knowledge which contributes to fertilize the earth and to multiply its inhabitants. All the northern climates have turned their attention to the improvement of their lands. Even Spain has exerted herself; and, though little populous, has however engaged foreign husbandmen to labour in her uncultivated Provinces.

It is a fact somewhat remarkable, though it might naturally be expected, that men should have returned to the exercise of agriculture, the first of the arts only, after they had successively tired the rest. It is the common progression of the human mind, not to regain the right path, till after it hath exhausted itself in pursuing false tracks. It is always advancing; and as it relinquished agriculture, to pursue commerce and the enjoyments of luxury, it soon traversed over the different arts of life

life, and returned at last to agriculture, which is the source and foundation of all the rest, and to which it devoted its whole attention, from the same motives of interest that had made it quit it before. Thus the eager and inquisitive man, who voluntarily banishes himself from his country in his youth, wearied with his constant excursions, returns at last to live and die in his native country.

Every thing, indeed, depends upon, and arises from the cultivation of land. It forms the internal strength of states; and occasions riches to circulate into them from without. Every power which comes from any other source, is artificial and precarious, either considered in a natural or moral light. Industry and commerce, which do not directly affect the agriculture of a country, are in the power of foreign nations, who may either dispute these advantages through emulation, or deprive the country of them through envy. This may be effected either by establishing the same branch of industry among themselves, or by suppressing the exportation of their own unwrought materials, or the importation of those materials when manufactured. But a country well cultivated occasions an increase of population, and riches are the natural consequence of that increase. This is not the teeth which the dragon sows to bring forth soldiers to destroy each other; it is the milk of Juno, which peoples the Heavens with an innumerable multitude of stars.

The government, therefore, should rather be attentive to the support of country villages, than of great cities. The first may be considered as parents and nurseries always fruitful; the others only as daughters which are often ungrateful and barren. The cities can scarce subsist but from the superfluous part of the population and produce of the countries. Even fortified places and ports for trade, which seem to be connected with the whole world by their ships, which diffuse more riches than they possess, do not, however, attract all the treasures they dispense, but by means of the produce of the countries that surround them. The tree must, therefore, be watered at its root. The cities will only be flourishing in proportion as the fields are fruitful.

But this fertility depends less upon the soil than upon the inhabitants. Spain and even Italy, though situated under a climate the most favourable to agriculture, produce less than France or England; because the efforts of nature are impeded in a thousand ways by the form of their government. In all parts

parts where the people are attached to the country by property, by the security of their funds and revenues, the lands will flourish. In all parts where privileges are not confined to the cities, and labour to the countries, every proprietor will be fond of the inheritance of his ancestors, will increase and embellish it by assiduous cultivation, and his children will be multiplied in proportion to his means, and these be increased in proportion to his children.

It is, therefore, the interest of government to favour the husbandmen, in preference to all the indolent classes of society. Nobility is but an odious distinction, when it is not founded upon services of real and evident utility to the state; such as the defence of the nation against the encroachments of conquest, and against the enterprises of despotism. The nobles furnish only a precarious and oftentimes fatal assistance; when after having led an effeminate and licentious life in the cities, they can only afford a weak defence for their country upon her fleets and in her armies, and afterwards return to court, to solicit, as a reward for their baseness, places, and honours, which are revolting and burthensome to the nation. The Clergy are a set of men useless, at least, to the earth, even when they are employed in prayer. But when, with scandalous morals, they preach a doctrine which is rendered doubly incredible and impracticable from their ignorance and from their example; when, after having disgraced, discredited, and overturned religion, by a variety of abuses, of sophisms, of injustices and usurpations, they wish to support it by persecution; then this privileged, indolent, and restless class of men, become the most dreadful enemies of the state and of the nation. The only good and respectable part of them that remains, is that portion of the Clergy, who are most despised and most burthened with duty, and who, being situated among the lower class of people in the country, labour, edify, advise, comfort, and relieve, a multitude of unhappy men.

The husbandmen deserve to be preferred by government, even to the manufacturers, and the professors of either the mechanical or liberal arts. To encourage and to protect the arts of luxury, and at the same time neglect the cultivation of the land, that source of industry, to which they owe their existence and support, is to forget the order of the several relations between nature and society. To favour the arts and to neglect agriculture, is the same thing as to remove the basis of a pyramid, in order to finish the top.

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The mechanical arts engage a sufficient number of hands by the allurements of the riches they procure, by the comforts they supply the workmen with, by the ease, pleasures and conveniences that arise in cities where the several branches of industry unite. It is the life of the husbandman that stands in need of encouragement for the hard labours it is exposed to, and of indemnification for the losses and vexations it sustains. The husbandman is placed at a distance from every object that can either excite his ambition, or gratify his curiosity. He lives in a state of separation from the distinctions and pleasures of society. He cannot give his children a polite education, without sending them at a distance from him, nor place them in such a situation as may enable to distinguish and advance themselves by the fortune they may acquire. He does not enjoy the sacrifices he makes for them, while they are educated at a distance from him. In a word, he undergoes all the fatigues that are incident to man, without enjoying his pleasures, unless supported by the paternal care of government. Every thing is burdensome and humiliating to him, even the taxes, the very name of which sometimes makes his condition more wretched than any other.

Men are naturally attached to the liberal arts by their peculiar genius, which makes this attachment grow up into a kind of passion; and likewise by the reputation they reflect on those who distinguish themselves in the pursuit of them. It is not possible to admire the works of genius, without esteeming and caressing the persons endowed with that valuable gift of nature. But the man devoted to the labours of husbandry, if he cannot enjoy in quiet what he possesses, and what he gathers; if he is incapable of improving the benefits of his condition, because the sweets of it are taken from him; if the military service, if vassalage and taxes, are to deprive him of his child, his cattle, and his corn, nothing remains for him, but to imprecate both the sky and the land that torment him, and to abandon his fields and his country.

A wise government cannot refuse to pay its principal attention to agriculture, without endangering its very existence: the most ready and effectual means of assisting it, is to favour the multiplication of every kind of production, by the most free and general circulation.

An unrestrained liberty in the exchange of commodities, renders a people at the same time commercial and attentive to agriculture; it extends the views of the farmer towards trade, and those of the merchant towards cultivation. It connects

them to each other by such relations as are regular and constant. All men belong equally to the villages and to the cities, and there is a reciprocal communication maintained between the provinces. The circulation of commodities brings on in reality the golden age, in which streams of milk and honey are said to have flowed through the plains. All the lands are cultivated; the meadows are favourable to tillage by the cattle they feed; the growth of corn promotes that of vines, by furnishing a constant and certain subsistence to him who neither sows nor reaps, but plants, prunes and gathers.

Let us now consider the effects of a contrary system, and attempt to regulate agriculture, and the circulation of its produce by particular laws; and let us observe what calamities will ensue. Power will not only be desirous of observing and being informed of every action, but will even want to assume every important act to itself, in consequence of which nothing will succeed. Men will be led like their cattle, or transported like their corn; they will be collected and dispersed at the will of a tyrant to be slaughtered in war, or perish upon fleets, or in different colonies. That which constitutes the life of a state will become its destruction. Neither the lands, nor the people, will flourish, and the states will tend quickly to their dissolution, that is, to that separation which is always preceded by the massacre of the people, as well as their tyrants. What will then become of manufactures?

[To be continued.]

ART. II. *Premiums adjudged by the York Society.*

AT a meeting of the Agriculture Society at Beverley, for the East-Riding of the County of York, and County of Hull, on the 3d of April, Robert Carlisle Broadley, Esq; was elected President, and Peter Acklom and Everard Fawkener, Esqrs. Vice-presidents.—At the same time and place, an honorary premium was adjudged to Christopher Sykes, Esq; for having planted the greatest number of larch trees, viz. 54,430; another honorary premium was adjudged to Robert Grimston, Esq; for having planted the next greatest number, viz. 25,500; also another honorary premium was adjudged to the above-named Robert Carlisle Broadley, for having planted the next greatest number, viz. 13,780; and also a premium of two guineas was adjudged to Thomas Tyon, of Cakill, servant, for having destroyed the greatest number of rats in one year, from April 1779, to April 1780, viz. 482, he not being a professed rat-catcher.

ART.

ART. III. A MODERN UNIVERSAL TABLE. *The most copious and authentic that ever was published, of the present State of the real and imaginary Monies of the World, in Europe, Asia, Africa, and America. (Concluded from p. 85.)*

[From Guthrie's New System of Geography, 4to.]

Southern Parts of EUROPE.

V E N I C E.

Bergham, &c.

			£.	s.	d.
A Picolf	=		0	0	0 $\frac{1}{36}$
12 Picoli	=	2 Soldi	0	0	0 $\frac{1}{3}$
6 $\frac{1}{2}$ Soldi	=	* 2 Gros	0	0	2 $\frac{1}{8}$
18 Soldi	=	2 Jule	0	0	6
20 Soldi	=	* 2 Lire	0	0	6 $\frac{2}{3}$
3 Jules	=	2 Testoon	0	1	6
124 Soldi	=	2 Ducat current	0	9	5 $\frac{1}{3}$
24 Gros	=	* 2 Ducat of Ex.	0	4	4
17 Lires	=	2 Chequin	0	9	2

T U R K E Y.

Morea, Candia, Cyprus, &c.

A Mangar	=		0	0	0 $\frac{1}{36}$
4 Mangars	=	an Asper	0	0	0 $\frac{1}{3}$
3 Aspers	=	a Parac	0	0	1 $\frac{1}{5}$
5 Aspers	=	a Bestic	0	0	3
10 Aspers	=	an Ollie	0	0	6
20 Aspers	=	a Solata	0	1	0
80 Aspers	=	* a Piafire	0	4	0
100 Aspers	=	a Caragrouch	0	5	0
10 Solatas	=	a Xeriff	0	10	0

A S I A. ARABIA.

Medina, Mecca, Mocha, &c.

A Carret	=		0	0	0 $\frac{1}{8}$
5 $\frac{1}{4}$ Carrets	=	a Caveer	0	0	0 $\frac{125}{200}$
7 Carrets	=	* a Comashee	0	0	0 $\frac{9}{16}$
80 Carrets	=	a Larin	0	0	10 $\frac{1}{8}$
18 Comashees	=	an Abyfs	0	1	4 $\frac{1}{5}$
60 Comashees	=	* a Piafire	0	4	6
80 Caveers	=	a Dollar	0	4	6
100 Comashees	=	a Sequin	0	7	6
80 Larins	=	* a Tomond	3	7	6

O 2

PERSIA.

P E R S I A.

Ispahan, Ormus, Gombroon, &c.

			£.	s.	d.
A Coz	=	-	0	0	0 $\frac{2}{3}$
4 Coz	=	a Bifti	0	0	1 $\frac{1}{3}$
10 Coz	=	a Shahee	0	0	4
20 Coz	=	a Mamooda	0	0	8
25 Coz	=	a Larin	0	0	10
4 Shahees	=	an Abashee	0	1	4
5 Abashees	=	an Or	0	6	8
12 Abashees	=	a Boyello	0	16	0
50 Abashees	=	* a Tomond	3	6	8

MOGUL. GUZZURAT.

Surat, Cambay, &c.

A Pecka	=	-	0	0	0 $\frac{15}{16}$
2 Peckas	=	a Pice	0	0	0 $\frac{15}{16}$
4 Pices	=	a Fanam	0	0	1 $\frac{7}{8}$
5 Pices	=	a Viz	0	0	2 $\frac{1}{2}$
16 Pices	=	an Ana	0	0	7 $\frac{1}{2}$
4 Anas	=	a Rupee	0	2	6
2 Rupees	=	an English Crown	0	5	0
14 Anas	=	a Pagoda	0	8	9
4 Pagodas	=	a Gold-Rupee	1	15	0

M A L A B A R.

Bombay, Dabul, &c.

* A Budgrook	=	-	0	0	0 $\frac{27}{32}$
2 Budgrooks	=	* a Re	0	0	0 $\frac{27}{32}$
5 Rez	=	a Pice	0	0	0 $\frac{27}{32}$
16 Pices	=	a Laree	0	0	5 $\frac{3}{4}$
20 Pices	=	a Quarter	0	0	6 $\frac{1}{4}$
240 Rez	=	a Xeraphim	0	1	4 $\frac{1}{2}$
4 Quarters	=	a Rupee	0	2	3
14 Quarters	=	a Pagoda	0	8	0
60 Quarters	=	a Gold Rupee	1	15	0

Goa, Visapour, &c.

* A Re	=	-	0	0	0 $\frac{27}{32}$
2 Rez	=	a Bazaraco	0	0	0 $\frac{27}{32}$
2 Bazaracos	=	a Pecka	0	0	0 $\frac{27}{32}$
20 Rez	=	a Vintin	0	0	1 $\frac{7}{8}$
4 Vintins	=	a Laree	0	0	5 $\frac{3}{4}$
3 Larees	=	a Xeraphim	0	1	4 $\frac{1}{2}$
42 Vintins	=	a Tangu	0	4	6
4 Tangus	=	a Paru	0	18	0
8 Tangus	=	a Gold Rupee	1	15	0

COROMANDEL.

C O R O M A N D E L.

Madras, Pondicherry, &c.

A Cash	=	-	0	0	0	$\frac{3}{16}$
5 Cash	=	a Viz	0	0	0	$\frac{1}{16}$
2 Viz	=	a Pice	0	0	0	$\frac{1}{8}$
6 Pices	=	a Pical	0	0	2	$\frac{1}{4}$
8 Pices	=	a Fanam	0	0	3	
10 Fanams	=	a Rupee	0	2	6	
2 Rupees	=	an English Crown	0	5	0	
36 Fanams	=	a Pagoda	0	8	9	
4 Pagodas	=	a Gold Rupee	1	15	0	

B E N G A L.

Calicut, Calcutta, &c.

A Pice	=	-	0	0	0	$\frac{3}{16}$
4 Pices	=	a Fanam	0	0	0	$\frac{5}{16}$
6 Pices	=	a Viz	0	0	0	$\frac{1}{8}$
12 Pices	=	an Ana	0	0	1	$\frac{7}{16}$
10 Anas	=	a Fiano	0	1	6	$\frac{1}{4}$
16 Anas	=	a Rupee	0	2	6	
2 Rupees	=	a French Ecu	0	5	0	
2 Rupees	=	an English Crown	0	5	0	
56 Anas	=	a Pagoda	0	8	9	

S I A M.

Pegu, Malacca, Cambodia, Sumatra, Java, Borneo, &c.

A Cori	=	-	0	0	0	$\frac{3}{16}$
800 Cori	=	a Fettee	0	0	0	$\frac{3}{16}$
125 Fettees	=	a Sataleer	0	0	7	$\frac{1}{2}$
250 Fettees	=	a Sooco	0	1	3	
500 Fettees	=	a Tatal	0	2	6	
900 Fettees	=	a Dollar	0	4	6	
2 Ticals	=	a Rial	0	5	0	
4 Soccos	=	an Ecu	0	5	0	
8 Sataleers	=	a Crown	0	5	0	

C H I N A.

Pekin, Canton, &c.

A Caxa	=	-	0	0	0	$\frac{2}{3}$
10 Caxa	=	a Candereen	0	0	0	$\frac{4}{3}$
10 Candereens	=	a Mace	0	0	8	
35 Candereens	=	a Rupee	0	2	6	
2 Rupees	=	a Dollar	0	4	6	
70 Candereens	=	a Rix-dollar	0	4	4	$\frac{1}{2}$
7 Maces	=	an Ecu	0	5	0	
2 Rupees	=	a Crown	0	5	0	
10 Maces	=	a Tale	0	6	8	

JAPAN.

J A P A N.

Jeddo, Medco, &c.

A Piti	=	-	0	0	0	$\frac{2}{3}$
20 Pitis	=	a Mace	0	0	4	
15 Maces	=	an Ounce Silver	0	4	10	$\frac{1}{3}$
20 Maces	=	a Tale	0	6	8	
30 Maces	=	an Ingot	0	9	8	$\frac{1}{4}$
13 Ounces Silver	=	an Ounce Gold	3	3	0	
2 Ounces Gold	=	a Japanese	6	6	0	
2 Japaneses	=	a Double	12	12	0	
21 Ounces Gold	=	* a Cattee	66	3	0	

A F R I C A. EGYPT.

Old and New Cairo, Alexandria, Sayde, &c.

An Asper	=	-	0	0	0	$\frac{1}{5}$
3 Aspers	=	a Medin	0	0	1	$\frac{1}{5}$
24 Medins	=	an Italian Ducat	0	3	4	
80 Aspers	=	* a Piaſtre	0	4	0	
30 Medins	=	a Dollar	0	4	6	
96 Aspers	=	an Ecu	0	5	0	
32 Medins	=	a Crown	0	5	0	
200 Aspers	=	a Sultanin	0	10	0	
70 Medins	=	a Pargo Dollar	0	10	6	

B A R B A R Y.

Algiers, Tunis, Tripoly, Una, &c.

An Asper	=	-	0	0	0	$\frac{1}{5}$
3 Aspers	=	a Medin	0	0	1	$\frac{1}{5}$
10 Aspers	=	a Rial old Plate	0	0	6	$\frac{3}{4}$
2 Rials	=	a Double	0	1	1	$\frac{1}{2}$
4 Doubles	=	a Dollar	0	4	6	
24 Medins	=	a Silver Chequin	0	3	4	
30 Medins	=	a Dollar	0	4	6	
180 Aspers	=	a Zequin	0	8	10	
15 Doubles	=	a Piſtole	0	16	9	

M O R O C C O.

Santa Cruz, Mequinez, Fex, Tangiers, Sallee, &c.

A Fluce	=	-	0	0	0	$\frac{1}{12}$
24 Fluces	=	a Blanquil	0	0	2	
4 Blanquils	=	an Ounce	0	0	8	
7 Blanquils	=	an Octavo	0	1	2	
14 Blanquils	=	a Quarto	0	2	4	
2 Quartos	=	a Medio	0	4	8	
28 Blanquils	=	a Dollar	0	4	6	
54 Blanquils	=	a Xequin	0	9	0	
100 Blanquils	=	a Piſtole	0	16	9	

ENGLISH.

AMERICA. WEST-INDIES. [ENGLISH.]

Jamaica, Barbadoes, &c.

			£.	s.	d.
* A Halfpenny	=	-	0	0	0 $\frac{1}{2}$
2 Halfpence	=	* a Penny	0	0	0 $\frac{1}{2}$
7½ Pence	=	a Bit	0	0	5 $\frac{1}{2}$
12 Pence	=	* a Shilling	0	0	8 $\frac{1}{2}$
75 Pence	=	a Dollar	0	4	6
7 Shillings	=	a Crown	0	5	0
20 Shillings	=	* a Pound	0	14	3
24 Shillings	=	a Pistole	0	16	9
30 Shillings	=	a Guinea	1	1	0

F R E N C H.

St. Domingo, Martinico, &c.

* A Half Sol	=	-	0	0	0 $\frac{1}{2}$
2 Half Sols	=	* a Sol	0	0	0 $\frac{1}{2}$
7½ Sols	=	a Half Scalin	0	0	2 $\frac{1}{2}$
15 Sols	=	a Scalin	0	0	5 $\frac{1}{2}$
20 Sols	=	* a Livre	0	0	8 $\frac{1}{2}$
7 Livres	=	a Dollar	0	4	6
8 Livres	=	an Ecu	0	4	10 $\frac{1}{2}$
26 Livres	=	a Pistole	0	16	9
32 Livres	=	a Louis d'Or	1	0	0

CONTINENT. ENGLISH.

New-Scotia, New-England, Virginia, &c.

* A Penny	=	-	0	0	1
12 Pence	=	* a Shilling	0	1	0
20 Shillings	=	* a Pound	1	0	0
2 Pounds.	3 Pounds.	4 Pounds.	5 Pounds.	6 Pounds.	
7 Pounds.	8 Pounds.	9 Pounds.	10 Pounds.		

The Value of the currency alters, according to the plenty or scarcity of gold and silver coins that are imported.

Canada, Florida, Cayena, &c.

* A Denier					
12 Deniers	=	* a Sol			
20 Sols	=	* a Livre.			
2 Livres.	3 Livres.	4 Livres.	5 Livres.	6 Livres.	
7 Livres.	8 Livres.	9 Livres.	10 Livres.		

The value of the currency alters, according to the plenty of gold and silver coins that are imported.

Note. For all the *Spanish, Portuguese, Dutch, and Danish* dominions, either on the Continent or in the WEST-INDIES, see the monies of the respective nations.

ART. IV. *Method for the speedy recovering of the use of the Foot or Hand, that has been violently Sprained.*

IT may lead us to a right management of the part strained, if we consider the effects of a strain, when it is very great, viz.

1. Such an extension of the tendons and vessels of the muscles strained, that they cannot contract themselves to their natural lengths.

2. That the great elongation of the vessels, (which deprives them of their contractive power) lessens the diameter of their cavities, obstructs the free course of their fluids through them, makes them swell, and become painful, and incapable of their useful services, or of being moved by the acts of the will, as before the accident happened.

These effects of violent strains may lead us to conclude, that the best remedies are those applications which may best attenuate the obstructed fluids, recover an easy circulation of them, and sufficiently contract the elongated vessels.

For these purposes I advise vinegar, the rectified spirit of wine, such as is burnt in lamps, friction, and motion in the following manner, viz.

Suppose the ankle to be sprained,

1. Let it be fomented with vinegar a little warm, for four or five minutes at a time, once every four hours: this will render the circulation of the fluids in the parts affected more easy, and either prevent a swelling, or promote its subsiding.

2. Let the person stand three or four minutes at a time on both his feet, in their natural posture, and sometimes move the strained foot: and sometimes when sitting with his foot on a low stool, let him move it this way and that, as he can bear it: this will contribute much to contract the overstretched vessels, and to recover a due circulation of their fluids through them.

3. Let a gentle dry friction with a warm hand be sometimes used to the parts affected, which will conduce much to the same ends.

4. Two hours after every application of the vinegar, let the part affected be just wetted with the rectified spirits of wine, and then gently rubbed.

By these means persons to whom I have advised them, have recovered from the effects of very violent sprains in as few days, as some others have been weeks in recovering by different ways of management, such as a continual resting of the strained foot and disuse of its motions.

F. L.

ART.

ART. V. *On the Cultivation of Potatoes.*

[Continued from page 96.]

MORE depends upon the chusing a proper soil for potatoes, than for almost any other root. Not but it is hardy, and will live any where, but it will not spread and propagate its roots, unless the soil suits. It is the farmer's interest to consider this particular in the most careful manner.

There are but few soils that will answer, in the right manner, to the potatoe; and those that do yield such a prodigious increase, that on both occasions it is worth considering strictly. The first quality the soil for potatoe must have is freedom and openness; the second is richness; and the third a due degree of moisture. This shews us that the best soil of all for them is a mellow earth, or good fine mould, in the condition wherein we most frequently see it, which is light, deep, and with some moisture.

After the mellow and pure earth, the soil next most favourable is a rich loam: this will supply them very well alone, if it be of the richest kind of this earth, but if not, it is to be mended by dung.

By this direction as to the soil the farmer is to chuse, and will know what he is to avoid; and first of all clay is to be shunned because it will not suffer the roots to spread; and gravel, because it will not supply them with nourishment. Chalky soils are also improper for the same reason as gravel, because there wants nourishment; as to the sandy kind, they fall under the same fault of poorness, but they are open and free for the spreading of the roots; and on some grounds of this kind, that have not been too absolute a sand, improved a little with manure, I have seen very good potatoes.

The red potatoe succeeds best upon the sandy soil, but it never equals that on the rich loam, less still that on the mellow earth. The different effects of the soils we have named are these: the clay will not let the roots spread; and the sandy, though they give the spreading room, will not feed them sufficiently; the light mellow earth produces therefore the largest and the most numerous roots.

There may be an easier improvement made in the sandy soil, than on any other for this use. The laying on, from time to time, a proper manure, will bring it into as good condition as one naturally fine. The best manure is rotten dung and the mud of ponds; this, mixed in a good proportion, and laid on freely, will bring a piece of sandy ground, that has any natu-

ral richness of its own, into the condition of the finest loamy soil whatsoever; and there is but one, as we have shewn, superior to that for the raising this root well.

The soil being chosen, the potatoe is to be planted, and in the doing that there is no great difficulty; however, the farmer must exactly observe the directions, or he will fail in his crop.

This being a kind of garden root, let the garden practice be so far observed, that the ground be well broken and prepared for the reception. Let it be ploughed in a careful manner, considerably deep, and so as to break the whole soil.

Let there be trenches or furrows cut across the field, six inches deep, and a foot asunder; in these the farmer is to lay regularly and carefully the smallest roots of potatoes he can get, but with a very particular care that they be fresh and fine. They must be placed in these trenches six inches from one another, and covered up by harrowing the ground all over.

This is to be done in the latter end of February, and the land is to be left in this even condition till the potatoes shoot, and the weeds among them.

When these are up at such a height that they can be well distinguished from the shoots of the potatoe, the hoers are to be sent into the field, to cut them all down; and in doing this they will break and divide the surface of the ground so, that the rains and dews will get in, and the crop thrive upon it immediately.

When the weeds have once again got up to a height, as they soon will from the wet and warmth of spring, the hoers are to go in again and clear all away.

After this no more care is requisite, the stalks of the potatoe will now be so high and so strong, that they will suffer no more weeds to grow among them.

This is all the culture and all the care the potatoe requires, and nothing can be more easy. Here is no particular expence in preparing the ground, no great charge of stock or labour; and there is no hazard of success. The sale is certain, and the profit absolutely very great. One summer brings the crop to perfection, and there is no one shadow of a reason against the farmer's raising them.

The crop has been put into the ground in the end of February, and it requires no more time for its encrease than to the latter end of September. Indeed no more than this can be allowed it, for the potatoe should always be taken out of the earth, before there be a possibility of frosts that could hurt it.

During

During the summer it is free from any danger, and in autumn it is to be taken out of the ground.

Toward the middle of September let the farmer begin to take up his potatoes, and let him begin with that part of the field that lies most exposed, leaving till afterwards that part which is most sheltered: he is thus to begin and continue taking them up, parcel after parcel, once in two or three days, as there is a demand for them: but when he perceives the ground first affected to any depth by the frost, he must at once get up all the remainder, for this is an accident that will always hurt them.

As he will perceive the season of the frost approaching, he must prepare for it by providing a place where to put his potatoes, when he shall take them up. A cellar, with a good quantity of sand, will answer this purpose, and he will thus be able to preserve them from frost: taking out what he has a demand for as he wants them, and reserving the smallest, which will bring him least at market, for planting in the spring.

This is the whole care requisite. As to the produce, it will be greater than those can easily believe, who are not much accustomed to such things: it will depend upon the soil, as we have observed already, but the difference is so great, that the expence of well dividing and breaking the land by tillage, and well enriching it by manure where requisite, will be very amply returned. The size as well as number depending upon these articles.

Ten tolerably large potatoes is but a moderate produce, from each small root that was planted in spring; when the ground is more favourable, thirteen or fourteen handsome ones; for nature has in all things provided, that whatever is most useful is most abundant.

The consequence of the frost taking the potatoe is a kind of dissolution of its substance, it runs to water and rots.

The approach of frosts is a plain direction, but the decay of the stalks, and the condition of the plant, will not fail to give the farmer an earlier notice. About the middle of September the plant entirely ripens, and after that it quickly fades. The first frosts, which we do not feel, affect the plants and attack the stalk and leaves, before they penetrate the ground so as to come near the root. When the farmer sees the leaves yellow, and the berries of a dead ripe colour and dropping, he may take notice that the first appearance of ripeness in the root is come. Let him begin to take up at that time, and continue till all are out of the ground.

It has been proposed by some who are fond of schemes, and presume to call any practice that is new an improvement of husbandry, to cut off the tops of the potatoe as soon as they grow poor and fade, in order to preserve the root from frosts. We have seen this tried, and warn the farmer from repeating such a project. It let in the frost to the roots where we saw it experienced, much sooner and more powerfully than it otherwise would have been, and the consequence was the loss of great part of a very good crop of roots.

The tops in this instance were mowed down very clean with a scythe, and there could be no better way proposed, but the effect was just contrary to the improver's expectation, though very conformable to what might have been expected from reason; for certainly nature here is the best adviser.

The potatoe very difficultly preserves itself against the first frosts of the winter, but it will be sheltered by the quantity of dead stalks and leaves of its own, that lie upon the ground; which will serve as the laying of straw and pease haulm about early plants, a practice very well known for its effects by all gardeners: then, on the other hand, the cutting off the stalks not only denies the roots the protection and defence of their covering intended by nature, but lets in the frost directly to them, through the cut part of the stalks. This is an effect so agreeable to reason, that one would wonder the other thought could ever have entered into the head of any person in the world.

The advantage of the potatoe lying as long in the ground as may be, is that it all the time is encreasing in bigness, at least till frosts come, and the encrease in bigness is encrease in value.

Some have ventured their potatoes in the ground all winter, covering them with fern and and other such matters, beside their own straw; but this is hazardous, and of no use. The potatoes may thus be preserved through the winter, but they will not grow in the least, and there is some danger that they may perish in spite of all the covering. The nature of the field must finally determine the farmer, who is inclined to this expedient, whether he shall venture upon it or no, for there may be differences in soil and exposure, very essential on this head. The more wet there is in the grounds the greater the danger; the sandy soils therefore are fittest for this purpose. A field may be so situated, and of such a soil, that the ground may serve as sand, and the enclosure keep it as warm as à cellar; but in this case there is no advantage, though there may be little hazard;
some

some sand in a cellar keeps them more securely, and they will no more grow in the field than there.

When the time of taking the potatoes up is come, the farmer must send into the ground a man or more, and to every man one or two women, or grown up children; the man must have a strong three-tined pitch fork, with which he is to dig up the potatoes, and the women and children are to follow him, picking them up, and carrying them to heaps that they may be conveniently taken off the ground together.

When they are got home, they must be cleaned and lightly washed, and after this dried two or three days in the sun; they will then be fit for market or for keeping.

Beside the way of keeping in a cellar, potatoes, when the quantity is very large, may be preserved during the winter in a pit made in the ground, but this must be done with great care and circumspection. The farmer, who intends this method, must see for a dry place, where the soil is of a warm nature, and there is good shelter. Here he must dig his pit or ditch; and the best method is to make it in form of a ditch, three feet wide, five feet deep, and line it on the sides and bottom with dry wheat straw. This done the potatoes are to be carefully put in till the ditch, which is to be long in proportion to the quantity, be full up to the level of the ground; a quantity of straw is then to be put over them, and on this is to be raised a ridge of very dry earth. In this manner they will keep throughout the winter, and be ready on all occasions.

ART. VI. *Description of, and Observations upon, the Cock-Chaffer, both in its Grub and Beetle state.*

AS there are few insects more prejudicial to the farmer than that generally known by the name of the Cock Chaffer, I beg leave to make a few observations thereon.

In different parts of this kingdom these insects are called by different names, such as the Chaffer, the Cock-Chaffer, the Jeffrey-Cock, the May-Bug, and (in Norfolk) the Dor.

In what class Linnæus ranks them, I do not remember; but they seem to be the *Scarabæus arboreus vulgaris major* of Ray.

When full grown in their grub-state, they are near an inch and a half long, and as big as a child's little finger. Their heads
are

are red, their bodies soft, white, and shining, with a few hairs on the back. They have three hairy legs on each side, all placed near the head, in which are two forceps or jaws, like the hornet; with these they cut asunder the roots of grass, corn, &c. and frequently destroy whole fields in a short time. In this eruca or grub-state, they continue three and sometimes four years.

In their beetle-state they have two pair of wings; the one filmy, and the other scaly. The interior pair are folded up in a curious manner, and remain hid, unless when expanded for flight. The elytra, or case-wings, are of a reddish brown colour, and sprinkled over with a fine white powder, like the auricula. The legs and tail (which is pointed) are whitish. The body is brown, except at each joint on the sides of the belly, which is indented with white. The circles round the eyes are yellowish; the antenna short, and terminated by fine lamellated spreading tufts, which the creature expands more or less as it is brisk and lively, or otherwise.

The first account I find of these destructive insects, is given by Mouffett, who tells us, that in the year 1574, such a multitude of them fell into the Severn, that they clogged, and even stopped, the wheels of the water-mills.

There is also an account in the transactions of the Dublin society, that the country people suffered so much in one county, by the devastation these insects made, that they set fire to a wood several miles in length, to prevent their further progress.

In the day-time they seldom fly about, but conceal themselves beneath the leaves of oak, sycamore, maple, hazel, lime, and some other trees, which they soon eat to a skeleton; but about sun-set they are all on the wing, and fly about the trees and hedges as thick as a swarm of bees.

While in their grub-state, they entirely destroy all the grass, corn, or turnips, where they harbour.

I have seen fine meadows, which in May and June have been all withered, and as brown as thatch.

These grubs generally lie near two inches below the surface, and eat the roots of the grass so regularly, that I have rolled up many yards of the withered turf as easy as though it had been cut for a garden.

When they attack turnips, they eat only the middle of the small root; but by that means, kill all they bite without remedy. Neither the severest frosts in our climate, nor even keeping them in water, will kill them.

I have

I have kept some in water near a week; they appeared motionless; but on exposing them to the sun and air a few hours, they recovered, and were as lively as ever: hence, it is evident, they can live without air. On examining them with a microscope, I could never discover any organs for respiration, or perceive any pulsation.

Hogs will root up the land for them, and at first eat them greedily; but seldom meddle with them a second time. To rooks and crows they seem to be a high regale. When numerous, they are not destroyed without great difficulty; the best method is, to plough up the land in thin furrows, and employ children to pick them up in baskets; and then strew salt and quick-lime, and harrow in.

About thirty years since, I remember many farmers' crops in Norfolk were almost ruined by them in their grub-state; and in the next season when they took wing, the trees and hedges in many parishes were stripped bare of their leaves as in winter. At first the people used to brush them down with poles, and then sweep them up and burn them. One farmer made oath, that he gathered eighty bushels; but their number seemed not much lessened, except just in his own fields.

Their mode of coupling is singular; and the time of their continuance in that act, sometimes two or three days. I have seen one of them fly in that state, with the other hanging pendant from its tail; and am in some doubt whether (like snails) they are not hermaphrodites, as there seems to be a mutual insertion.

They deposit their eggs in the earth. The first year the grubs are very small, and do little mischief; the second year they are increased to the size of a goose-quill, and are very injurious to the herbage; the third year they attain full size, and fly.

I am, &c.

E. RACK.

ART. VII. *Account of the Culture of CARROTS; and thoughts on Burnbaiting on Mendip-hills.*

[In a Letter to the Secretary of the Bath Agriculture Society; extracted from the Papers of that Society, just published, in Octavo, price 5s.]

IN pursuance of the directions of the society, I herewith transmit particulars of the culture, expences, and produce of my carrot crop, which you lately did me the honour of inspecting.

From

From a hearty wish to promote the public-spirited designs of that most laudable institution, I have taken the liberty to annex a few remarks on the comparative advantages of liming and burnbaiting, in respect to the soil of the new inclosures on Mendip-hills.

As the spirit of cultivating these wastes seems to overcome every obstacle, and as a knowledge of the inefficacy of burning may prevent much useless expence, I trust these few hints, drawn from real experience, will not be thought trifling or unimportant.

The field in which my carrots were raised was a few years ago part of the forest of Mendip. It contains eight acres: the soil a gravelly loam, of a good depth.

In the year 1776, it received an ample manuring with lime, (about twenty quarters per acre) and was sown with turnips; in 1777, with barley; in 1778, it was again manured with horse-dung, to the amount of fifteen cart-loads per acre, and planted with the large Scotch cabbage. The produce of this crop was very great, being more than thirty tons per acre, and the stock I maintained with them would astonish the farmer unaccustomed to the cultivation of this plant. And here I cannot forbear recommending, in the warmest manner, the culture of this cabbage, (in conjunction with turnips) to every spirited Agriculturist, and particularly to those who keep large flocks of sheep. Every person in that branch of farming must have frequently experienced, during severe frost and deep snow, great difficulty in getting at his turnips. Now, this inconvenience would be entirely obviated by his possessing three or four acres of this plant. For their height and hardness render them accessible, and sound at all times, and in the most severe seasons. I will not say, that the produce will be equal in weight to a well managed crop of turnips, but will be bold to affirm, that one hundred pounds of Scotch cabbage will go as far, in keeping or fattening horned cattle, as one hundred and fifty pounds weight of turnips.

But to return:—In the spring 1779, I began preparing for my carrot crop: Particulars as follow:

		£.	s.	d.
1779-				
Feb. 15.	First ploughing across the ridges of the cabbages, 4s. per acre	—	—	1 12 0
March 1.	First harrowing, 9d. per ditto	—	0	6 0
April 15.	Second ploughing, 4s. per acre		1	12 0
20.	Second (bush) harrowing, 9d. per acre		0	6 0
				30 lb.

	30 lb. red Sandwich carrot-seed, 1s.	1	10	0
24.	Sowing by hand in drills, one foot apart, and covering the seed, 13s. —	5	4	0
June 4.	Hand-hoeing and thinning, 20s.	8	0	0
October.	Digging up, 30s. — —	12	0	0
	Carting home, cutting off tops, & securing,	10	0	0
	Rent of land — —	8	0	0
		48	10	0
	The produce was 640 sacks of four bushels each, valued at 3s. a sack — — —	96	0	0
	Each sack weighed upwards of 200 pounds			
	Net profit of the crop	£. 47	10	0
	Or nearly 6l. per acre. Quantity of carrots, 8 tons per acre.			

From experiments which I have made, I am fully persuaded, that carrots are worth more than three shillings per sack, for fattening hogs.

I will now proceed to give proof of the inefficacy of burn-baiting when applied to the soil of Mendip-hills, drawn from real experience, and designed as a caution to those who may be disposed to adopt this mode of improvement.

Having frequently met, in different authors, with the most flattering and encouraging accounts of this plan of cultivation, and also been an eye witness of very large crops procured thereby, on black moory soils, I formed a resolution of trying the effects of the ashes thus procured, in comparison with lime. For this purpose, I chose a field in which there was no apparent variation of soil. As it was a new inclosure, and had never been ploughed, the furze, fern, &c. with which it abounded, added to the turf, furnished more than three hundred bushels of very fine ashes.

I then divided the field, and spread the three hundred bushels on half of it, fully expecting the most beneficial effects from so ample a manuring. On the other half of the field I spread four hundred bushels of lime, and sowed the whole in one day with wheat.

On the coming up of the wheat, I was very attentive to the field, and not a little surprized to see the limed part assume the most lively and healthful verdure, whilst the other part appeared very weak and languid, insomuch that the difference was perceivable at a mile's distance.

The limed part maintained its superiority from that time to harvest; and on threshing, I found the produce of the limed

part to be twenty-four bushels, and the burnt part only fourteen bushels per acre.

Besides, this was not the only difference, for in less than a month after harvest, the surface of that part of the field to which the ashes had been applied, was entirely covered with young furze, while the other part remained perfectly clean and free from it.

I have also tried burnbaiting as a preparation for potatoes, and have been equally disappointed and unsuccessful.

Shepton-Mallet, Dec. 7, 1779.

J. B.

ART. VIII. *On the Culture of Carrots, and the Rot in Sheep.*

[In a Letter to the Secretary of the Bath Agriculture Society; taken from the Bath Society's volume of Papers.]

I Thank you greatly for the two letters you transmitted to me in your last; the one from Mr. Billingsley, on the culture, expences, and produce, of a crop of Carrots; the other containing Mr. Price's thoughts on the Rot in sheep.*

On the first subject, as somewhat informed by having sometimes grown 4 or 5 acres, never less than one or two in every year, for a considerable time, I dare venture to assure you, that Mr. B.'s state of the expences incurred are, in the articles of ploughing, harrowing, carting home, and securing, rather beyond the price I have ever paid for the same; and that he is not in any other of his articles beneath the fullest price here, nor is his produce greater than common, or what may be expected from such management; so that it is both as just and accurate an account as I have met with. The only objection to it which strikes me is, the heavy expence he was at of thirteen shillings per acre for sowing and covering the seed in drills, which practice, from two trials only which I have made of it, appears to me not so eligible as sowing the seed broad-cast. The two drilled crops were with me the worst I ever grew. The seed of carrots, although ever so well rubbed with sand or any other substance, will still adhere together to that degree, as to render the delivery of it in drills not only tedious, but very uncertain; and wherever they fail in patches, the loss of ground is considerable; besides the difference of nine-pence or a shilling per acre at most for random-sowing, and thirteen shillings per acre for drilling, is an object worth attending to.

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* See Mr. Price's Letter, vol. iv. p. 363.

The great expence attending the culture of carrots, being the chief, perhaps the sole obstacle to the general growth of them, every abridgement of that expence should be studied, as it bids fair to promote their common use. Perhaps the method in which I have some few years past proceeded, where it can be adopted with convenience, will be found as profitable, and attended with less trouble than any other. The proportions of it may be varied to suit the wishes or wants of every cultivator.

In a field containing four acres I first grew a crop of Turnips, which were clean hoed, and left very free from weeds; they were afterwards fed upon the land, which was immediately (in the beginning of March) manured with ten loads of dung, first ploughed in with a common plough, and afterwards trench-ploughed about fourteen or fifteen inches deep; two acres were harrowed very fine, and the seed sown about the middle of March, (though in general I prefer sowing towards the latter end of that month, as I have always found the plants come up nearly as soon as the earlier sown, and attended with fewer weeds.) The Carrots came up regularly and well, were ready to hoe in the beginning of May, and tolerably free from weeds; so free indeed, that they were hoed out with large hoes, and proved an excellent crop. The other two acres (part of the four which had been turnips) were prepared by ploughing and manuring as for the carrots, and set with potatoes, which came up very clean, and proved an abundant crop. In the succeeding year I grew one acre of carrots (with the former preparations) on the land where the potatoes grew, and one acre of potatoes where the carrots had grown; the other two acres were turnips. Ever since, for eight or ten years, this field has grown turnips, carrots, and potatoes, in the rotation above-mentioned: the carrots and potatoes coming upon the same ground only once in three years, the turnips every other year, whereby the land is become so clear of weeds and so rich, that my crops are annually better, and the expence of hoeing lessened at least one-half. The soil, on which this husbandry has been practised, is a good loam, inclining to sandy.

I have kept so few sheep, and observed them so little, that I cannot presume to offer my thoughts to you upon that subject.

Mr. A. Young's observation, that "the accounts are so amazingly contradictory, that nothing can be gathered from them," is as true as I am inclined to think his conclusion is, "that moisture is the cause of the rot;" and in this opinion I am confirmed as far as a single instance can confirm me.

It was in the case of a paddock adjoining to my park, which had for several years caused the rot in most of the sheep which were put into it. In the year 1769, I caused it to be under-drained with covered drains, which have worked well ever since, effectually curing its wetness; and, notwithstanding I have since kept my sheep in it, I have never killed one whose liver has been at all affected.

This, surely, seems to prove, as far as a single instance can do it, that, by taking away the superabundant water, I have entirely prevented the disorder. Whether the same arose from plants peculiar to a wet soil—whether from the eggs of insects lodged on such plants—whether from the nature and quality of all or any plants growing in such situations—or whether, as some have thought, from the mere act of lodging on such land,—are questions of more curiosity than use. The mere knowledge of the means of preventing so dreadful an evil being sufficient to answer every wish and purpose of the farmer.

Mr. Billingsley's opinion, confirmed by his experience, of the impropriety of burn-baiting, coincides entirely with the idea I had every conceived of that practice. It can never be good, but where the soil is very deep, and full of large coarse roots and other vegetable substances. The earth itself, when burnt, I have found to be a mere *caput mortuum*.

Norfolk.

I am, Sir, &c.

J. B.

ART. IX. *On Manures and Waste Land in Ireland.*

[From Mr. Young's Tour in Ireland.]

THE manure commonly used in Ireland is lime; inexhaustible quarries of the finest lime-stone are found in most parts of that island, with either turf, or culm, at a moderate price to burn it. To do the gentlemen of that country justice, they understand this branch of husbandry very well, and practise it with uncommon spirit. Their kilns are the best I have any where seen, and great numbers are kept burning the whole year through, without a thought of stopping on account of the winter. Their draw kilns burn up to forty barrels a day; and what they call French kilns, which burn the stone without breaking, have been made even to five thousand barrels in a kiln. Mr. Leslie laying ten thousand barrels on his land in one year, and Mr. Aldworth as much, are instances which I never heard equalled. The following table will shew the general practice.

Barrels

	<i>Barrels per acre.</i>	<i>Price per barrel.</i>		
		<i>s.</i>	<i>d.</i>	<i>f.</i>
Mr. M ^c Farlan,	160		7	
Slaine,	120		7	
Headfort,	80			
Packenham,			6	
Mr. Marley,	160	1	0	
Kilfaine,	80			
Mr. Kennedy,	40	2	6	
Hampton,	125		7	
Ld. Ch. Baron Forster,	160		9	
Market Hill,	30	1	6	
Warrenstown,	140	1	1	
Lecale,	115		11	
Mr. Leslie,	160			
Newtown Limavady,	100	1	0	
Castle Caldwell			6	
Inniskilling,	80		8	
Florence Court,	60		8	
Farnham,	150			
Mr. Mahon,			5	
Mr. Brown,			3	
Mr. French,			4	
Woodlawn,			4	
Annsgrrove,	100		8	
Mr. Aldworth,	160		6	
Lord Donneraile,	80		5	2
Mallow,	100	1	1	
Mr. Gordon,	50		7	2
Coolmore,	40		9	
Nedeen,		1	0	
Mucrus,	70		7	
Mr. Blennerhasset,	100		6	
Mr. Bateman,	50		6	
Marbot,	40	1	0	
Lord Tyrone,	200	1	0	
Average,	100		9	

These quantities are upon the whole considerable. The price shews the plenty of this manure in Ireland. To find any place where it can be burnt for three-pence and four-pence, is truly wonderful, but can only be from the union of turf and limestone at the place.

I no where heard of any land that had been over-limed, or on which the repetitions of it had proved so disadvantageous as it has sometimes been found in England.

Limestone

Limestone gravel is a manure peculiar to Ireland; and is most excellent. It is a blue gravel, mixed with stones as large as a man's fist, and sometimes with a clay loam; but the whole mass has a very strong effervescence with acid. On uncultivated lands it has the same wonderful effect as lime, and on clay arable, a much greater; but it is beneficial to all soils. In the isle of Anglesea, a country which very much resembles Ireland, there is a gravel much like it, which has also some effervescence; but I never met with it in any other part of England.

Marle in Ireland is not so common as these manures. That which is oftenest found is white, and remarkably light; it lies generally under bogs. Shell marle is dredged up in the Shannon, and in the harbour of Waterford.

In the catalogue of manures, I wish I could add the composts formed in well littered farm-yards, but there is not any part of husbandry in the kingdom more neglected than this; indeed I have scarce any where seen the least vestige of such a convenience as a yard surrounded with offices for the winter shelter, and feeding of cattle. All sorts of animals range about the field in winter, by which means the quantity of dung raised is contemptible. To dwell upon a point of such acknowledged importance is needless. Time, it is to be hoped, will introduce a better system.

[*The Observations on Waste Lands in our next.*]

ART. X. *An Explanation of the twelve hieroglyphical Signs of the Zodiac, by which the different seasons of the year are denoted.*

There stood gay spring; fair flow'rs her brows surround;
 There summer naked, and with wheat-ears crown'd;
 With trodden grapes, there autumn stood besmear'd;
 And icy winter with his hoary beard.

THE learned are of opinion, that the Egyptians gave to the twelve signs the several names ascribed to them, viz. *Aries* the Ram, *Taurus* the Bull, *Gemini* the Twins, *Cancer* the Crab, *Leo* the Lion, *Virgo* the Virgin, *Libra* the Ballance, *Scorpio* the Scorpion, *Sagittarius* the Archer, *Capricornus* the Goat, *Aquarius* the Water, *Pisces* the Fishes; it being a custom amongst them to disguise things worthy of their observation under the form or symbol of a known object, that bore some

some resemblance to that which lay concealed. For instance, it is reasonable to believe, that they represented the Supreme Being, and his divine attributes; such as his immensity and omnipotence, his fecundity and infinite perfection, under the symbol of the sun; that they represented nature, or matter, which is altogether dependent on that Supreme Being, and diversified every moment, under the image of the moon, who borrows her light from the sun, and is perpetually changing her appearance: And this, in all probability, was the fountain and foundation, or at least one of the principal causes of idolatry and superstition. But be that as it may, the Egyptians were extremely fond of hieroglyphics; and the twelve signs of the Zodiac were always called by the several names assigned to them, in conformity to their own method and peculiar taste: And they are capable likewise of some reasonable explications.

The old Egyptians, having first observed the four natural divisions of the year, perceived that the sun, in each of those seasons, was placed successively under distinct stars. In order therefore to be as exact as possibly they could, and to parcel out the year in such a manner as should be most commodious and unalterable, they divided each of the four seasons by three cantons of different stars, and the whole year into twelve houses, or stations of the sun, to which they gave the name of twelve different animals that had relation to what was transacted upon earth in each of those divisions of the year.

The sun, in spring, covers the earth with a vast variety of inestimable blessings. Those which the ancients were peculiarly fond of, and valued most, were sheep, kine, and goats. In order to adumbrate, therefore, those numberless benefits, and that fecundity which was restored to them by the spring, they gave to the three constellations thro' which the sun passes in the spring, the name of those three different creatures. The first constellation under which the sun is found, when the winter is withdrawn, and the days and nights are equal, was distinguished by the name of the first animal, that is usually brought forth at that particular period, that is to say, the Lamb, or its parent, the Ram. The second bore the title of the Bull; and as the Goats, which are hot in November, and pregnant for five months, bring forth two young ones oftener than one; at the expiration of that term the third constellation of the spring bore the name of twins, or kids; and not the twin-brothers, Castor and Pollux, as the Greeks substituted in their room, but without foundation. When the sun is arrived at the summer solstice, he advances no
towards

towards the Pole, but returns with abundance of gravity and precaution, as it were, to the Equator; for which reason the Egyptians thought proper to assign the name of the Crab to those stars under which he then appears. The manner in which this animal marches is well known; and nothing could more aptly adumbrate the retrogradation of the sun.

The excessive heats which next come on, and the full lustre in which that glorious luminary then appears, induced them to give the constellation, under which he then moves, the name of the Lion, the king and terror of all terrestrial animals. The harvest which immediately succeeds inclined them to delineate the sixth constellation, by the figure of a young female Reaper, bearing an ear of corn. The emblem or allusion is taken from those young virgins, who gained their livelihood by gleanings after the reapers. And nothing could be a more lively representation of that season of the year, when providence is lavish, as it were, of her favours, and supplies both rich and poor with plenty of provisions.

It would be impossible to express that constellation which the equinox falls under, and equals day and night, by any better symbol than that of a ballance in equilibrio. The various distempers occasioned by the sun in his retreat, or which break out in the middle of autumn, made them give the next set of stars the title of the Scorpion; because that animal carries not only a sting, but a bag of poison in his tail, and makes use of both as he finds occasion. The Sagittary or archer (in the room of which the Greeks have substituted the fabulous idea of the Centaur) who follows that destructive animal, has a visible relation to the chase, or the diversion of hunting, which is principally followed after the fall of the leaf. As the Crab that crawls with a retrograde motion was made the symbol of the summer-solstice, after which the sun always returns to the equator; so, on the other hand, in order to delineate the winter solstice, after which the sun rises, and continues his progressive motion to the other tropic, the name of Capricorn, or the Wild Goat, was chosen; because this animal most commonly climbs as it brouzes, and continues ascending and feeding till it has reached the summit or top of the rocks and mountains. The water-pot is a lively image of the hail, rain, and snow, that fall in the dark winter season. And lastly, the two fishes, which are linked together by a fillet or bandage, seem to have reference to the generation of those animals, who make their appearance about the close of winter, at which period angling begins to come in season, and fishes to breed.



T H E
FARMER'S MAGAZINE.

M A Y, 1780.

—♦♦♦♦♦—
A DISSERTATION on the Progress and present State of
AGRICULTURE. [Continued.]

E U R O P E.

AGRICULTURE gives birth to the arts, when it becomes general, and is carried to that degree of perfection which gives men leisure to invent, and procure themselves the conveniences of life; and when it has occasioned a population sufficiently numerous to be employed in other labours, besides those which the land requires; then a people must necessarily become either soldiers, navigators, or manufacturers. As soon as war has changed the rude and savage manners of a laborious people; as soon as it has nearly circumscribed the extent of their empire, those men who were before engaged in the exercise of arms must then apply themselves to the management of the oar, the ropes, the scissars, or the shuttle, in a word, of all the instruments of commerce and industry; for the land, which supported such a number of men without the assistance of their own labour, does not any more stand in need of it. As the Arts ever have a country of their own, their peculiar place of refuge, where they are carried on and flourish in tranquillity, it is easier to repair thither in search of them, than to wait at home till they shall have grown up, and advanced with the tardy progression of ages, and the favour of chance which presides over the discoveries of genius. Thus every nation of Europe that has had any industry, has borrowed the most considerable share of the arts from Asia. There invention seems to have been coeval with mankind.

VOL. II.

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The beauty and fertility of those climes hath always produced a most numerous race of people, as well as abundance of fruits of all kinds. There, laws and arts, the offspring of genius and tranquillity, have arisen from the settled state of government; and luxury, the source of every enjoyment that attends industry, has sprung out of the richness of the soil. India, China, Persia, and Egypt, were in possession not only of all the treasures of nature, but also of the most brilliant inventions of art. War in these countries hath often destroyed every monument of genius, but they rise again out of their own ruins, as well as mankind.

It was in a country successively subdued by the Scythians, Romans, and Saracens, that the nations of Europe, which not even Christianity nor time could civilize, recovered the arts and sciences without endeavouring to discover them. The Crusades exhausted the fanatic zeal of those who engaged in them, and changed their barbarous manners at Constantinople. It was by journeying to visit the tomb of their Saviour, that they acquired a taste for magnificence, pomp, and wealth. By them the Asiatic grandeur was introduced into the courts of Europe. Italy, the seat from whence religion spread her empire over other countries, was the first to adopt a species of industry that was of benefit to her temples, the ceremonies of her worship, and those processions which serve to keep up devotion by means of the senses, when once it has engaged the heart. Christian Rome, after having borrowed her rights from the Eastern nations, was still to draw from thence the wealth by which they are supported.

Venice, whose galleys were ranged under the banner of liberty, could not fail of being industrious. The people of Italy established manufactures, and were a long time in possession of all the arts, even when the conquest of the East and West-Indies had caused the treasures of the whole world to circulate in Europe. Flanders derived her manual arts from Italy; England obtained those she established from Flanders; and France borrowed the general industry of all countries. Of the English she purchased her stocking-looms, which work ten times as fast as the needle. The number of hands unoccupied from the introduction of the loom, were employed in making of lace, which was taken from the Flemings. Paris surpassed Persia in her carpets, and Flanders in her tapestry, in the elegance of her patterns, and the beauty of her dyes; and excelled Venice in the transparency and size of her mirrors. France learned to dispense with part of the silks received from
Italy,

Italy, and with English broad cloths. Germany, together with her iron and copper mines, has always preserved the superiority she had acquired in melting, tempering, and working up those metals. But the art of giving the polish and fashion to every article that can be concerned in the ornaments of luxury, and the conveniences of life, seems to belong peculiarly to the French; whether it be that, from the vanity of pleasing others, they find the means of succeeding by all the outward appearances of brilliant shew; or that in reality grace and ease are the constant attendants of a people naturally lively and gay, and who by instinct are in possession of taste.

Every people given to agriculture ought to have arts to employ their materials, and should multiply their productions to maintain their artists. Were they acquainted only with the labours of the field, their industry must be confined in its cause, its means, and its effects. Having but few wants and desires, they would exert themselves but little, employ fewer hands, and work less time. Their cultivation would neither be extended nor improved. Should such a people be possessed of more arts than materials, they must be indebted to strangers, who would ruin their manufactures, by sinking the price of their articles of luxury, and raising the value of their provisions. But when a people, engaged in agriculture, join industry to property, the culture of their produce to the art of working it up, they have then within themselves every thing necessary for their existence and preservation, every source of greatness and prosperity. Such a people are endued with a power of accomplishing every thing they wish, and stimulated with the desire of acquiring every thing that is possible.

Nothing is more favourable to liberty than the Arts; it may be said to be their element, and that they are, in their nature, citizens of the world. An able artist may work in every country, because he works for the world in general. Genius and abilities every where avoid slavery, while soldiers find it in all parts. When through the want of toleration in the clergy, the protestants were driven out of France, they opened to themselves a refuge in every civilized state in Europe: but when the jesuits have been banished from their own country, they have found no asylum any where; not even in Italy, the parent of monachism and intolerance.

The arts multiply the means of acquiring riches, and contribute by a greater distribution of wealth to a more equitable repartition of property. Thus is prevented that excessive in-

equality among men, the unhappy consequence of oppression, tyranny, and blind infatuation of a whole people.

Manufactures contribute to the advancement of knowledge and of the sciences. The torch of industry serves to enlighten at once a vast horizon. No art is single: the greater part of them have their forms, modes, instruments and elements in common. The mechanics themselves have contributed prodigiously to extend the study of mathematics. Every branch of the genealogical tree of science has unfolded itself with the progress of the arts, as well liberal as manual. Mines, mills, the manufacture and dying of cloth, have enlarged the sphere of philosophy and natural history. Luxury has given rise to the art of enjoyment, which is entirely dependent on the liberal arts. As soon as architecture admits of ornaments without, it brings with it decorations for the inside of our houses: while sculpture and painting are at the same time employed in the embellishment and adorning of the edifice. The art of design is applied to our dress and furniture. The pencil, ever fertile in new designs, is varying without end its sketches and shades on our stuffs and our porcelain. The powers of genius are exerted in composing at leisure, master-pieces of poetry and eloquence, or those happy systems of policy and philosophy, which restore to the people their natural rights; and to sovereigns all their glory, which consists in reigning over the heart and the mind, over the opinion and will, of their subjects, by the means of reason and equity.

Then it is that the arts produce that spirit of society which constitutes the happiness of civil life; which gives relaxation to the more serious occupations, by entertainments, shews, concerts, conversations, in short, by every species of agreeable amusement. Ease gives to every virtuous enjoyment an air of liberty, which connects and mingles the several ranks of men. Business adds a value or a charm to the pleasures that are its recompence. Every citizen, depending upon the produce of his industry for subsistence, has leisure for all the agreeable or toilsome occupations of life, as well as that repose of mind which leads on to the sweets of sleep. Many indeed fall victims to avarice, but still less than to war or religious zeal; the continual scourges of an idle people.

After the cultivation of the land, the encouragement of the arts and sciences is the next object that deserves the attention of man. At present, both serve to constitute the strength of civilized governments. If the arts have tended to weaken mankind, then the weaker people must have prevailed over the

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the strong ; for the balance of Europe is in the hands of those nations, who are in possession of the arts.

Since manufactures have prevailed in Europe, the human heart, as well as the mind, have changed their bent and disposition. The desire of wealth has arisen in all parts from the love of pleasure. We no longer see any people satisfied with being poor, because poverty is no longer the bulwark of liberty. We are obliged, indeed, to confess, that the arts in this world supply the place of virtues. Industry may occasion vices ; but it banishes, however, those of idleness, which are infinitely more dangerous. As information gradually dispels every species of fanaticism, while men are employed for the gratifications of luxury, they do not destroy one another through superstition. At least, human blood is never spilt without some appearance of interest ; and war, probably, destroys only those violent and turbulent men, who in every state are born to be enemies to and disturbers of all order, without any other talent, any other propensity, than that of doing mischief. The arts restrain that spirit of dissention, by subjecting man to stated and daily employments. They bestow on every rank of life the means and the hopes of enjoyment, and give even the meanest a kind of estimation and importance by the advantage that results from them. A workman at forty has been of more real value to the state than a whole family of vassals who were employed in tillage under the old feudal system. An opulent manufacture brings more benefit into a village than twenty castles of antient barons, whether hunters or warriors, ever conferred on their province.

If it be a fact, that in the present state of things the people who are the most industrious ought to be the most happy and the most powerful, either because, in wars that are unavoidable, they furnish of themselves, or purchase by their wealth, more soldiers, more ammunition, more forces, both for sea or land service ; or that, having a greater interest in maintaining peace, they avoid contests, or terminate them by negociation ; or that, in case of a defeat, they the more readily repair their losses by the effect of labour ; or that they are blessed with milder and more enlightened government, notwithstanding the means of corruption and slavery that tyranny is supplied with by the effeminacy which luxury produces ; in a word, if the arts really civilize nations, a state ought to neglect no opportunities of making manufactures flourish.

These opportunities depend on the climate, which, as Polybius says, forms the character, complexion, and manners of nations.

tions. The most temperate climate must necessarily be the most favourable to that kind of industry, which requires less exertion. If the climate be too hot, it is inconsistent with the establishment of manufactures, which want the concurrence of several persons together to carry on the same work; and excludes all those arts which employ furnaces, or strong lights. If the climate prove too cold, it is not proper for those arts which can only be carried on in the open air. At too great or too small a distance from the Equator, man is unfit for several labours which seem peculiarly adapted to a mild temperature. In vain did Peter the Great search among the best regulated states for all such arts as were best calculated to civilize his people; during a period of fifty years, not one of these principles of civilization have been able to flourish among the frozen regions of Russia. All artists are strangers in that land, and if they endeavour to reside there, their talents and their works soon die with them. When Lewis XIV. in his old age (as if that were the time of life for severity) persecuted the protestants, in vain did they introduce their arts and trades among the people who received them; they were no longer able to work in the same manner as they had done in France. Though they were equally active and laborious, the arts they had introduced were lost, or declined, from not having the advantage of the same climate and heat to animate them.

To the favourable disposition of climate, for the encouragement of manufactures, should be united the advantage of the political situation of the state. When it is of such extent as to have nothing to fear or want in point of security; when it is in the neighbourhood of the sea for the landing of its materials, and the sale of its manufactures; when it is situated between powers that have iron mines to employ its industry, and others that have mines of gold to reward it; when it has nations on each side with ports and roads open on every quarter; such a state will have all the external advantages necessary to excite a people to open a variety of manufactures.

But one advantage still more essential is, fertility of soil. If cultivation requires too many hands, there will be a want of labourers, or the manufacturers will employ so many hands, that there will not be men enough to cultivate the fields; and this must occasion a dearth of provisions, which, while it raises the price of workmanship, will also diminish the number of trades.

Where fertility of soil is wanting, manufactures require, at least, as few men to be employed as possible. A nation that
should

should expend much on its mere subsistence would absorb the whole profits of its industry. When the gratifications of luxury are greater or more expensive than the means of supplying them, the source from which they are derived is lost, and they can no longer be supported. If the workman will feed and clothe himself like the manufacturer who employs him, the manufacture is soon ruined. The degree of frugality that republican nations adhere to from motives of virtue, the manufacturer ought to observe from views of parsimony. This may be the reason, perhaps, that the arts, even those of luxury, are more adapted to republics than monarchies; for, under monarchical institutions, poverty is not always the sharpest spur with the people to industry. Labour, proceeding from hunger, is narrow and confined like the appetite it springs from; but the work that arises from ambition spreads and increases as naturally as the vice itself.

National character has considerable influence over the progress of the arts relative to luxury and ornament. A particular people is fitted for invention by that levity which naturally inclines them to novelty. The same nation is fitted for the arts, by their vanity, which inclines them to the ornament of dress. Another nation, less lively, has less taste for trivial matters, and is not fond of changing fashions. Being of a more serious turn, these people are more inclined to indulge in excesses of the table, and to drinking, which relieves them from all anxiety and apprehension. Of these nations, the one must succeed better than its rival in the arts of decoration, and must have the preference over it among all the other nations which are fond of the same arts.

The advantages which manufactures derive from nature are further seconded by the form of government. While industry is favourable to national liberty, that in return should assist industry. Exclusive privileges are enemies to commerce and the arts, which are to be encouraged only by competition. Even the rights of apprenticeship, and the value set on corporations, are a kind of monopoly. The state is prejudiced by that sort of privilege, which favours incorporated trades; that is, petty communities are protected at the expence of the greater body. By taking from the lower class of the people the liberty of choosing the profession that suits them, every profession is filled with bad workmen. Such as require greater talents are exercised by those who are the most wealthy; the meaner, and less expensive, fall often to the share of men born to excel in some superior art. As both are engaged in a profession for which they

they have no taste, they neglect their work, and prejudice the art: the first, because they have no abilities; the latter, because they are convinced that their abilities are superior to it. But if we remove the impediment of corporate bodies, we shall produce a rivalry in the workmen, and consequently, the work will increase as well as be more perfect.

It may be a question, whether it be beneficial to collect manufactures in large towns, or to disperse them over the country. This point is determined by facts. The arts of primary necessity have remained where they were first produced, in those places which have furnished the materials for them. Forges are in the neighbourhood of the mine, and linen near the flax. But the complicated arts of industry and luxury cannot be carried on in the country. If we disperse over a large extent of territory all the arts, which are combined in watch and clock-making, we shall ruin Geneva with all the works that support it. The perfection of stuffs requires their being made in a town where fine dyes may at once be united with beautiful patterns, and the art of working up woollens and silk with that of making gold and silver lace. If there are wanting eighteen hands to make a pin, through how many manual arts and artificers must a laced coat or an embroidered waistcoat pass? How shall we be able to find, amidst an interior central province, the immense apparatus of arts that contribute to the furnishing of a palace, or the entertainments of a court. Those arts, therefore, that are most simple and connected with others, must be confined to the country; and such cloaths as are fit for the lower class of people must be made in the provinces. We must establish between the capital and the other towns a reciprocal dependance of wants and conveniences, of materials and works; but still nothing must be done by authority or compulsion; workmen must be left to act for themselves. Let there be freedom of traffic, and freedom of industry; and manufactures will prosper, population will increase.

[*To be continued.*]



ART. II.

ART. II. *An Abridgement of several Letters published by the Agriculture Society at Manchester, in consequence of a Premium offered for discovering, by actual Experiment, the cause of the Curled Disease in Potatoes.*

[From the Bath Society's Volume of Papers.]

L E T T E R I.

THE Writer of this Letter is of opinion, that this disease is caused by an insect produced by frost or bad keeping before setting; and that the newest kinds, such as have been raised within these nine or ten years, are most apt to curl, because they will not stand to be kept in winter and spring before setting, as the old kinds will; for in one experiment he took an equal quantity of fine potatoes (what are called Manley's) out of the heap; one part he kept moist and cool, which made them full of virtue, and firm; that when they came to be set, there was moisture to dissolve the set, and feed the branch, and not one curled amongst them.

The other part he kept dry and free from wet, till wrinkled and soft, and the moisture almost expended, so that when set, instead of putrifying and decaying, the set itself received nourishment from the ground, and became solid and harder than ever, and all in a manner curled.

In autumn 1776, he got up a bed of potatoes to lay by in winter, leaving plenty in the ground as regular as possible; and, before the severity of winter came on, covered part of the bed with straw and pease-haulm, and left the other part of the bed uncovered; that part of the bed which was covered was quite free from curled ones, but the uncovered part produced a great many curled, owing, as the writer says, to frost and severity of the weather.

L E T T E R II.

THE writer of this letter had about a quarter of an acre of potatoes, well manured with cow and horse-dung, and took the greatest care in picking the fine smooth-skinned potatoes for sets: yet nine out of ten parts were curled. He attributes the cause of this disease to a white grub or insect, which he found near the root, about half an inch long, with eight or ten legs, its head brown and hard, as upon examining a number of the curled roots, he found them all bitten, chiefly from

the surface to the root, which of course stopped the progress of the sap, and threw the leaf into a curl. The uncurled roots were not bitten. He tried a few experiments as follow : First, he put soot to the insects in the rows for two days ; and after that, he put lime to them for the same time, but they still kept lively : next he put a little salt, which destroyed them in a few hours : from which he infers, that if coarse salt were put into ground at the time the land is preparing for potatoes, it would effectually cure this distemper.

L E T T E R III.

THIS writer attributes the cause of the disease to the method of earthing the stems while in cultivation ; and that the branch, striking root into the new earthed-up soil, produces potatoes of such a nature as the year following to cause the disease complained of.

To prevent the disease, he recommends the sets to be taken from those potatoes that have not bred any from the branch covered ; or otherwise to dig the part the sets are to be raised from.

L E T T E R IV.

THIS writer thinks that the disorder proceeds from potatoes being set in old tilled or worn-out ground ; for, though those potatoes may look tolerably well, yet their sets will most, if not all, produce curled potatoes ; hence he is convinced, that no sets ought to be used from old tilled or couch-grass land ; and that, in order to have good sets, they should be procured from land that was purposely fallowed for them ; from fresh ley land, where they are not curled ; or from ley land that was burnt last spring : plant them on virgin mould, and your potatoes will have no curled ones amongst them : keep them for winter from any other kind.

To avoid the uncertainty of getting good sets, he recommends crabs to be gathered from potatoes growing this year on fresh land, free from curl, and the next spring to sow them on fresh ley land, and continue to plant their sets on fresh ley land, yearly, which he is convinced will prevent the curl.

There are different sorts of curled potatoes, some badly curled, others not so bad : those that are badly curled will not be recovered by planting them on fine fresh ley land ; and those that are but little curled may be recovered by planting them on the afore-mentioned land.

Some

Some potatoes will have one good stem, and one curled stem, owing to the set having two eyes; one end of which roots, and will have a good stem; the other end is hard, and will have a curled stem.

Several persons have sown seed in old-tilled gardens, in hopes to have been free from the curl; but wherever they planted them next year, they have been curled.

All the good potatoes he saw this year, either on fresh ley land, or on old tilled land, were raised from sets that grew upon fresh ley land last year; and where he has seen curled potatoes, he found, upon enquiry, the potatoe-sets grew upon old tilled and worn-out land last year. He gives as a general reason for the disorder, that the land is oftener cropt than it had used to be, much more corn being now raised than formerly.

LETTER V.

IN 1772, this writer planted some potatoes by accident full *nine* inches deep: when taken up, many of the plants were rotted, and a few curled. He kept the whole produce for seed, and planted two acres with it in 1773, not quite six inches deep: the crop was amazingly great; and he did not observe any curled plants among them. In 1774 many of these were planted in different soils, yet they were so infected with the curled disease, that not one in twenty escaped. In 1775, the complaint of this disease became general. In 1776, it occurred to him that the good crop of 1775 was owing to the *accidental deep setting* of 1772; and that the reason why the *same seed* became curled in 1774, was their being set so near the surface in 1773, and attributes the disease to the practice of *ebb-setting*. In 1777, he took some potatoes from a crop that was curled the year before, and after cutting the setts, left them in a dry room for a month. Half were planted in ground dug fourteen days before; the other half, having been steeped in a brine made of whitster's ashes for two hours, were also planted in the same land, at the same time. The steeped ones came up ten days before the others, and hardly any missed, or were curled. The unsteeped ones generally failed, and those few that came up were mostly curled.

He therefore advises as a remedy,

1. That the potatoes intended for *next* year's sets be planted nine inches deep.

S 2

2. That

2. That they remain in the ground as long as the season will permit.
3. That these sets be well defended from frost till the beginning of March.
4. That the sets be cut a fortnight before planting.
5. That they be steeped as above, two hours, in brine or lye.
6. That the dung be put *over* the sets. And
7. That fresh sets, be got every year from sandy soils near the coast, or on the shore.

P. S. At planting, the hard dry sets should be cast aside, for they will probably be curled. Curled potatoes always proceed from sets which do not rot or putrefy in the ground.

L E T T E R VI.

THIS writer had five drills of the old red potatoes. and four of the winter whites, growing at the same time in one field. The drills were prepared exactly alike. Among the red not one was curled; the winter whites were nearly all curled. He says he has found by experience that the red never curl.

L E T T E R VII.

TWO of the writer's neighbours had their sets out of one heap of potatoes. They both set with the plough, the one early, and the other late in the season. Most of those early set proved curled; and most of those set late, smooth; the latter on clay land.

A few roods of land were also planted with small potatoes, which had lain spread on a chamber floor all the winter and spring, till the middle of May. They were soft and withered; they proved smooth, and a good crop. Middle-sized potatoes, withered and soft, which had been kept in a large dry cellar, and the sprouts of which had been broken off three times, produced also a smooth good crop.

Hence he was led to think a superfluity of sap, occasioned by the seed being unripe, might cause the disease. To be satisfied in this, he asked the farmer whether he had set any of the same potatoes this year, and what was the nature of his land. He told him "he had; that they had been set on this farm fourteen years, without ever curling; that his soil was a poor whitish sand, of little depth; that he let those he designed for keeping grow till they were fully ripe."

Hence

Hence he concludes, the only sure way to prevent the curl is, to let potatoes, intended for seed, stand till they are fully ripe, and to keep them dry all winter.

L E T T E R VIII.

THIS writer set a quantity of the red potatoes, without having a curled one amongst them; his method is, when the sets are cut, to pick out such as are reddest in the inside. On digging them up at Michaelmas, he mixes none of the curled seed among the others. The curled are easily distinguished, by their stalks withering two months before the rest of the crop.

The cause of the curled disease he attributes to potatoes being of late years produced from *seed* instead of *roots*, as formerly. Such will not stand good more than two or three years, use what method you please. Last spring, he set the old red, and white ruffets, and had not a curled potatoe amongst them.

On the lime-stone land about Denbigh, in North-Wales, they have no curled potatoes. If this be owing to the nature of that land, perhaps lime might prevent the disease.

L E T T E R IX.

THIS writer says, that all sorts of grain wear out and turn wild, if sown too long on the same land; the same will hold good in all sorts of pulse, pease, beans, and (as he conceives) potatoes. It generally happens, that those who have most curled potatoes, plant very small sets.

Eleven years ago he bought a parcel of fresh sets, of the golden-dun kind, and has used them without change to the present year, without any being curled. This he principally attributes to his having always planted good large sets.

About four years since, he thought of changing his sets, as his potatoes were too smooth, too round, and much diminished in size. But the curl at that time beginning to be very alarming, he continued his sets till part of his crop missing last year, he was obliged to buy new sets this spring, which, being small, were curled like other people's.

He allows, that the curl has frequently happened to persons who have used large potatoes for sets; for, as all roots are not equally affected, some curled ones may be mixed with the rest.

To prevent the evil, cut your sets from clear and middle-sized potatoes gathered from places as clear of curl as possible; pre-

preserve them as usual till spring. If any are harder, or grassh more in cutting than usual, cast them aside. He would also recommend the raising a fresh sort from the crab produced on the sorts least affected, which in Lancashire are the *long duns*.

N. B. Here follow three certificates from persons who have raised their crops from large sets of the long duns, for many years, without being affected by the disease.

[To be concluded in our next.]

ART. III. *On Waste Lands in Ireland.*

[From Mr. Young's Tour in Ireland.]

[Continued from page 126.]

ALTHOUGH the proportion of waste territory is not, I apprehend, so great in Ireland as it is in England, certainly owing to the rights of commonage in the latter country which fortunately have no existence in Ireland; yet are the tracts of desert mountains and bogs very considerable. Upon these lands is to be practised the most profitable husbandry in the King's dominions; for so I am persuaded the improvement of mountain land to be. By that expression is not to be understood only very high lands, all wastes in Ireland that are not bog they call *mountain*; so that you hear of land under that denomination where even a hillock is not to be seen. The largest tracts, however, are adjoining to real mountains, especially where they slope off to a large extent gradually to the south. Of this sort Lord Kingsbrough has a very extensive and most unprofitable range. In examining it, with many other mountains, and in about five months experience of the beginning only of an improvement under my direction there, I had an opportunity of ascertaining a few points which made me better acquainted with the practicability of those improvements than if I had only passed as a traveller through the kingdom. By stating a few of the circumstances of this attempt, others who have mountains under similar circumstances may judge of the propriety of undertaking their improvement. The land has a gentle declivity from the Galty mountains towards the south, and to a new road Lord Kingsbrough made leading from Mitchelstown towards Cahir, which road he very wisely judged was the first step to the improvement of the waste parts of his estate as well as a great public benefit. To the south side of this road
limestone

limestone is found; and on the north side, the improvement was begun in a spot that included some tolerable good land, some exceeding rough & stoney, and a wet bottom, where there was a bog two, three, and four feet deep; the land yielded no other profit than being a commonage to the adjoining farm, in which way it might pay the rent possibly of a shilling an acre: twenty thousand acres by estimation joined it in the same situation which did not yield the fourth of that rent. In June I built a lime kiln which burnt twenty barrels a day, and cut, led, and flacked turf enough to keep it burning a whole twelve-month; sketched the fences of four inclosures, making thirty-four acres, and finished the first work of them, leaving the rest, and planting till winter*. I cleared two inclosures of stones; pared and burnt them; burnt eight hundred barrels of lime, limed one inclosure, and sowed one third with wheat, a third with rye, and the other with bere, as an experiment; the other field with turneps, which from the continual drought failed. Two cabbins were built. And the whole expence in five months, including the price of all ploughing, and carriage, (the latter from the miserable cars and *garrens* at a most extravagant rate) buying timber, steward's wages, &c. amounted to one hundred and fifty pounds. The moment the neighbours understood the works were at end, some of them offered me ten shillings an acre for the land to take it as it was, which is just eleven per cent. for the money, but I could have got more. The following were the only data gained: lime burnt for five-pence a barrel. Paring with the *graffan* in stony land 30s. to 40s. an acre, and done by the plough at 8s. much better; burning and spreading the ashes depends on weather, one piece cost above twenty shillings an acre, the other not five, but on an average I should calculate it at ten shillings. The whole operation may be very well done with a plough at 20s. Clearing from stones and carting away, various; I found a very stony piece could be cleared at twelve shillings an acre. A single ditch seven feet broad, and from three to five deep, the bank nine feet high from the bottom of the ditch, cost one shilling and sixpence; but this expence

* Where fences must be done by the day and not the perch, which will generally be the case in the beginning of an improvement in a very wild country, from the labourers being totally ignorant of taking work by measure; all that is possible should be executed in summer, especially in so wet a climate as Ireland; and when no more is paid for a day in July than in December. Some of my banks fell with the autumn rains, owing to two causes; first, the men, instead of knowing how to make a ditch, were mountaineers, who scarcely knew the right end of a spade; and secondly, it proved the driest season that ever was known in Ireland.

pence would have been lessened when they were more accustomed to it : consequently a double fence with a space left between for planting, three shillings.

My design was to purchase a flock of mountain sheep in the following spring, and keep them through the summer in the mountains, but folding them every night in the improvement, in which work I could have instructed the people; and when once they had seen the benefit, I do not think the practice would ever have been lost. To have provided plenty of turneps for their winter support, and improved the breed by giving them some better tups, but to have done this gradually in proportion as their food improved. Turneps to be for some years the only crop, except small pieces by way of trial. To have laid down the land to grass after a proper course of turneps in the manner and with the seeds I practised in Hertfordshire, which would have shewn what that operation is. There is not a complete meadow in the whole country. To have proportioned the sheep to the turneps at the rate of from twenty to thirty an acre according to the goodness of the crop: there is a power in such waste tracts of keeping any number in summer; the common people keep them all the year round on the mountains. The annual product of the improved land is in this system very easily ascertained. Suppose only twenty * sheep per acre, and no more than fifteen lambs from them, worth two shillings and sixpence each, it is thirty-seven shillings and sixpence, and the twenty fleeces at one shilling make fifty-seven shillings and sixpence: about three pounds therefore may be reckoned the lowest value of an acre of turneps at first; but as successive crops on the same land improve greatly, they would winter more than twenty, and both lambs and wool be more valuable, so that from a variety of circumstances I have attended to in that country, I am clear the common value of the turneps might be carried to four pounds, and in the course of a few years perhaps to five pounds an acre. And to state the expence of such an improvement completely finished at ten pounds an acre, including every article whatever; three crops of turneps amply repay the whole, and the future produce or rent of the land, neat profit. This would be twenty shillings an acre; twenty-five shillings are commonly paid for much worse land. The real fact of such improvements is a landlord's accepting an estate gratis, or at least paying nothing but trouble for it. I should remark, that the people I employed, though as ignorant as any

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* It is to be noted that flock sheep are only baited, and that chiefly in bad weather. The winters in Ireland are much milder than in England.

in the kingdom, and had never seen a turnep hoe, hoed the turneps, when I shewed them the manner, very readily, and though not skilfully, well enough to prove their docility would not be wanting; it was the same with the paring mattock, and the Norfolk turnep sower. They very readily execute orders, and seem to give their inclination to it.

There are several reasons which make these improvements more profitable and easy in Ireland than they are in England. There are no common rights to encounter, which are the curse of our moors. Buildings, which in England form one of the heaviest articles, are but a trifling expence; make the land good, and you will let it readily without any at all, or at least with an allowance of a roof towards a cabin; and lastly, the proportionate value of improved land compared with that of unimproved is much higher than it is with us, owing to the want of capital, rendering all improvements so rare, and to the common people so difficult. Three hundred pounds a year, steadily employed in such an undertaking, would in a few years create an estate sufficient for the greatest undertakings: but success depends on a regular unbroken exertion, a point I found very few persons in Ireland thoroughly understood, owing to their not being accustomed to large flocks of sheep regularly depending on turneps. At the time that this work was carrying on, his Lordship, by my advice, encouraged the peasantry to take in small parts of these mountains themselves. The adjoining farms being out of lease, he had a power of doing what he pleased; I marked a road, and assigned portions of the waste on each side to such as were willing to form the fences in the manner prescribed, to cultivate and inhabit the land, allowing each a guinea towards his cabin, and promising the best land rent-free for three years, and the worst for five; the eagerness with which the poor people came into this scheme convinced me, that they wanted nothing but a little encouragement to enter with all their might and spirit into the great work of improvement. They trusted to my assurance enough to go to work upon the ditches, and actually made a considerable progress. In all undertakings of this sort in Ireland it is the poor cottagers, and the very little farmers, who are the best tools to employ, and the best tenants to let the land to; but this circumstance raises many enemies to the work; the better sort who have been used to tread upon and oppress are ill pleased to see any importance or independancy given to them: and the whole race of jobbing gentlemen, whose conversation for ever takes the turn of ridiculing the poverty of the cottar tenants, will always be ready with an equal cargo

of falshood and ignorance to decry and depreciate any undertaking which is not to conduce to their own benefit: if a landlord does not steadily resolve to laugh at all this trash, he had better never think of improvements.

Trifling as they have been on the Irish mountains, yet are the bogs still more neglected. A few gentlemen have executed very meritorious works even in these, but as they, unfortunately for the public, do not live upon any of the very extensive bogs, the inhabitants near the latter deny the application of their remarks. Bogs are of two sorts, black and red. The black bog is generally very good, it is solid almost to the surface, yields many ashes in burning, and is generally admitted to be improveable though at a heavy expence. The red sort has usually a reddish substance five or six feet deep from the surface, which holds water like a sponge, yields no ashes in burning, and is supposed to be utterly irreclaimable.

In the variety of theories which have been started to account for the formation of bogs, difficulties occur which are not easily solved: yet are there many circumstances which assist in tracing the cause. Various sorts of trees, some of a great size, are very generally found in them, and usually at the bottom, oak, fir, and the yew the most common; the roots of these trees are fast in the earth; some of the trees seem broken off, others appear to be cut, but more with the marks of fire on them. Under some bogs of a considerable depth there are yet to be seen the furrows of land once ploughed. The black bog is a solid weighty mass which cuts almost like butter, and upon examination appears to resemble rotten wood. Under the red bog is always a stratum, if not equally solid with the black bog, nearly so, and makes as good fuel. There is upon the black as well as the red ones a surface of that spongy vegetable mass which is cleared away to get at the bog for fuel, but it is shallow on these. Sound trees are found equally on both sorts. Both differ extremely from the bogs I have seen in England in the inequality of the surface; the Irish ones are rarely level but rise into hills. I have seen one in Donnegal, which is a perfect scenery of hill and dale. The spontaneous growth most common is heath; with some bog myrtle, rushes, and a little sedgy grass. As far as I can judge by roads, laying gravel of any sort, clay, earth, &c. improves a bog, and brings good grass. The depth of them is various, they have been fathomed to that of fifty feet, and some are said to be still deeper.

From these circumstances it appears, that a forest cut, burnt, or broken down, is probably the origin of a bog. In all countries where

where wood is so common as to be a weed, it is destroyed by burning, it is so around the baltick, and in America at present. The native Irish might cut and burn their woods enough for the tree to fall, and in the interim between such an operation, and successive culture, wars and other intestine divisions might prevent it in those spots, which so neglected afterwards became bogs. Trees lying very thick on the ground would become an impediment to all streams and currents, and gathering in their branches, whatever rubbish such waters brought with them, form a mass of substance which time might putrefy, and give that acid quality to, which would preserve some of the trunks though not the branches of the trees. The circumstance of red bogs being black and solid at the bottom, would seem to indicate, that a black bog has received less accession from the growth and putrefaction of vegetables after the formation than the red ones, which from some circumstances of soil or water might yield a more luxuriant surface vegetation, till it produced that mass of sponge which is now found on the surface. That this supposition is quite satisfactory I cannot assert, but the effect appears to be at least possible, and accounts for the distinction between the two kinds. That they receive their form and increase from a constant vegetation appear from their rising into hills; if they did not vegetate, the quantity of water they contain would keep them on a level. The places where the traces of ploughing are found, I should suppose were once fields adjoining to the woods, and when the bog rose to a certain height it flowed gradually over the surrounding land.

But the means of improving them is the most important consideration at present. Various methods have been prescribed, and some small improvements have been effected by a few gentlemen, but at so large an expence that it is a question how far their operations answered. Here, therefore, one must call in theory to our aid from a deficiency of practice. Fortunately for a bog improver, drains are cut at so small an expence, in them, that that necessary work is done at a very moderate cost. But in spongy ones it must be repeated annually, according to the substance of the bog, and no other work attended to but sinking the drains lower and lower, by no means till you come to the bottom, (the necessity of which is a vulgar error) but till the spaces between them will bear an ox in boots. Then the surface should be leveled and burnt, and I would advise nothing to be done for a year or two, but rollers, as heavy as might be, kept repeatedly going over it, in order to press and consolidate the surface. Before any thing else was attempted I would see

the effect of this; probably the draining and rolling would bring up a fresh surface of vegetables not seen before; in that case I should have very few doubts of finishing the work with the feeding, treading, and fold of sheep, which would encourage the white clover and grasses to vegetate strongly; fortunately for any operation with sheep they can be kept safely, as they never rot in a drained bog. A very ingenious friend of mine thinks the whole might be done with sheep with little or no draining, but from viewing the bogs I am clear that is impossible. During the time of rolling and sheep feeding, the drains I would have kept clean and open, the labour of which would regularly be less and less. When the surface was so hard as to bear cars, marle, clay, gravel, or earth, might be carried on according to distance, which with the sheep feeding would convert it into good meadow. But as carting in a large improvement would probably be too expensive; I should think it worth while to try the experiment whether it would not be practicable to sink a shaft through the bog into the gravel or earth beneath it, boarding or walling, and plaistering with terrass or cement, in order to be able to draw up the under stratum, as all the chalk in Hertfordshire is raised, that is, wound up in buckets; chalk is so raised and wheeled on to the land for the price of eightpence the load of twenty bushels, and is found a cheap improvement at that price, yet the chalk drawers, as they call themselves, earn two shillings and two and sixpence each day. Whatever the means used, certain it is, that no meadows are equal to those gained by improving a bog; they are of a value which scarcely any other lands rise to: in Ireland I should suppose it would not fall short of forty shillings an acre, and rise in many cases to three pounds.

For the FARMER'S MAGAZINE.

ART. IV. *A Method of sowing Turnip-Seed, with a Certainty of succeeding in Growth, and avoiding the Ravages of the Fly; in a Letter to the Secretary of the Bath Society.*

SIR,

EXETER.

HAVING been lately informed of the following accidental discovery, and thinking it highly deserving public notoriety, as an object of great consequence, I take the liberty of requesting you to send it for publication in the next Farmer's Magazine. About Midsummer, take the first opportunity, when there is a certainty of rain approaching, or when it rains,
if

if about full moon the better, of sowing your turnip seed, *and do nothing more*. No harrowing, no brushing, no rolling. The natural heat of the ground at that season, and the consequent fermentation occasioned by a copious rain, (the longer the better) will give an astonishingly quick vegetation to the seed, which will in a few days be up, and out of all danger of the Fly, and subsequent drought.

At all events, determine not to sow till it rains; better wait a month, or even more, for rain, than to sow (merely for the sake of sowing about the usual time) when the ground is parched with heat, the sun scorching, the oil and vegetative quality of the seed consequently exhausted, and the few plants which may weakly come up, will be soon devoured by the fly; which in such dry hot weather will abundantly infest the ground, but do no injury in rain.

The falling rain will sufficiently wash the turnip seed into the ground, without harrowing it in, which, instead of merely covering too often buries this small seed at so great a depth, as never afterwards to get above ground, and whoever tries this experiment, I have no doubt, will be convinced of its efficacy, and of the inutility of harrowing. This appearing to be a public benefit, and capable of extension to other small seeds, is the only inducement of my subscribing myself on this occasion,

Your most humble servant,

C. G.

ART. V. *Manufacture of Kelp.*

[From "Antiquities and Scenery of the North of Scotland."]

Peterhead.

ABOUT fifty tons of kelp, near 2000l. value, are annually sent from hence to Newcastle. The rocks, which are dry at low water, are the beds of great quantities of sea weed, which is cut, carried to the beach, and dried; a hollow is dug in the ground three or four feet wide; round its margin are laid a row of stones, on which the sea weed is placed, and set on fire within, and quantities of this fuel being continually heaped upon the circle, there is in the center a perpetual flame, from which a liquid, like melted metal, drops into the hollow beneath; when it is full, as it commonly is ere the close of day, all heterogeneous matter being removed, the kelp is wrought with iron rakes, and brought to an uniform consistence in a state of fusion,

When

When cool, it consolidates into a heavy dark-coloured alkaline substance, which undergoes in the glass-house a second vitrification, and assumes a perfect transparency; the progress by which thus a parcel of sea weed, formerly the slimy bed of seals, or dreary shelter of shell-fish, is converted into a chrysal lustre for an assembly-room, or a set of glasses for his Majesty's table, is a metamorphosis that might be a subject for an entertaining tale.

Inundations of Sand, and means of prevention, from a note in the same work.

I have more than once, on the eastern coast of Scotland, observed the calamitous state of several extensive tracks, formerly in a most flourishing condition, at present covered with sand, unstable as those in the deserts of Arabia. The parish of Furrvie, in the county of Aberdeen, is now reduced to two farms, and above 500l. a year lost to the Errol family, as appears by the oath of the Factor in 1600, made before the court of session, to ascertain the minister's salary. Not a vestige is to be seen of any building, unless a fragment of the church.

The estate of Coecbin, near Forres, is another melancholy instance. This track was once worth 300l. a year; at this time overwhelmed with sand. This strange inundation was still in motion in 1769, chiefly when a strong wind prevailed. Its motion is so rapid, that I have been assured, that an apple-tree has been so covered with it in one season, that only the very summit appeared. This distress was brought on about ninety years ago, and was occasioned by the cutting down some trees, and pulling up the bent or star which grew on the sand hills; which at last gave rise to the act of 15 Geo. II. c. 33, to prohibit the destruction of this useful plant.

I beg leave to suggest to the public a possible means of putting a stop to their destructive ravages. Providence has kindly formed this plant to grow only in pure sand; mankind was left to make, in after times, an application of it suitable to their wants. The sand hills on the portion of the Flintshire shores, in the parish of Llanasa, are covered with it naturally, and kept firm in their place. The Dutch provinces owe the existence, of part at least of their country, to the sowing of it on the *mobile solum*, their sand banks.

My humane and amiable friend, the late B. Stillingfleet, Esq. recommended the sowing of this plant on the sandy wilds of Norfolk; that its matted roots might prevent the deluges of sand which that country experiences.

It

It has been already remarked, that wheresoever this plant grows, the salutary effects are soon observed to follow. A single plant will fix the sand, and gather it into a hillock; these hillocks, by the increase of vegetation, are formed into larger, till, by degrees, a barrier is often formed against encroachments of the sea, and might as often prove a preventative of the calamity in question.

I cannot therefore but recommend the trial to the inhabitants of many parts of North Britain. The plant grows in most places near the sea, and is known to the Highlanders by the name of *Murah*, to the English by that of *Bent-Star*, *Matt-grass*, or *Marram*; Linnæus calls it *Arundo arenaria*; the Dutch call it *Helm*.

This plant hath stiff and sharp-pointed leaves, growing like a rush, a foot and half long, the roots both creep and penetrate deeply into their sandy beds; the stalk bears an ear five or six inches long, not unlike rye; the seeds are small, brown, and roundish. By good fortune, as old Gerard observes, no cattle will eat or touch this vegetable, allotted for other purposes, subservient to the use of mankind.

T: P.

For the FARMER'S MAGAZINE.

ART. VI. *For a Horse's Cold.*

TAKE a handful of rue, and five or six cloves of garlick, bruise both in a mortar till you make it into a perfect salve; then mix it with fresh butter, a little clarified honey, and one ounce of anniseed finely powdered; then bruise it again, till you make it as balsamic as you can. Give two balls as big as a Turkey's egg fasting, and ride out your horse with cloths on till he is warm, but not to sweat. Repeat it three mornings, and take away some blood the second day after walking. Give warm water and litter down for four days.

For the FARMER'S MAGAZINE.

ART. VII. *A Strengthening Flummery.*

ONE ounce and a quarter of ising-glass, infused in as much water as will cover it, boiled in a quart of milk till it comes to a pint, a blade of cinnamon, and a bit of lemon-peel; sweeten it with loaf sugar to your taste, keep it stirring the whole time, pour it into cups, and stick it with almonds, to be eaten as other flummery, with white-wine or red.

ART.

ART. VIII. *On the use of Salt as Manure.*

MR. SYLVAN,

SOME writers have condemned salt as a destroyer of vegetation; others say, that it is an improver of land. Pray how is this difference to be accounted for; I wish some of your Correspondents would elucidate this subject, and in so doing oblige, your friend and constant reader,
Glocester.

T. L.

ART. IX. *An account of the ORIGIN of the WOOLLEN TRADE in ENGLAND.*

ONE of the earliest notices we have of sheep in Britain, considered with respect of their value, is found in Stillingfleet, who tells us, that between the years seven hundred and twelve, and seven hundred and twenty-seven, were made certain laws of King Ina, and in those a value or price was set upon the sheep kind. The price of an ewe and her lamb together, till a fortnight after Easter, is there set down at one shilling. The value of money was then very different from what it is now, but this, with all the allowances that can be made on that head, is but a very poor price.

We may learn by it that in King Ina's time the care of sheep was grown to some concern in the island; and there are other passages of the same period, that shew wool was an article comprised in the purchase of these creatures; but by all we learn on this head, the art of working it was but at a poor height; nor was any of it exported either wrought or raw.

Alfred, a name famous for military achievements, and also for the care of arts and commerce, took no small pains to improve this manufacture; but they did not much succeed; 'twas in the year 885, he set in earnest about this great work, but wolves were too numerous in the island to let sheep be kept in safety.

The consequences of the encouragement this sovereign gave to the raising of these animals, was seen in the succeeding years; for in 918, Edward, who had married the daughter of a country gentleman, distinguished by the regard he had shewn to this great concern, and thence called by those who little understood what they read in earlier writers, a shepherd, had his own daughters instructed in the art of carding, spinning, and manufacturing wool.

This double patronage bestowed by Edward, the countenance

nance he gave to one who employed himself in breeding sheep, and the example he set in making his daughters work the wool, was of so much assistance to the manufacture, that the pasturage of the southern countries became mostly occupied in feeding sheep, and every one, fond of recommending himself to the royal favour, became a shepherd, or at least employed his attention greatly on that article.

The wolves were for some time the principal obstacle to the progress of this great undertaking; but after many struggles with this inconvenience, Edgar, about the year 961, setting a price upon their heads, and by every other means encouraging their destruction, three or four years did the business: there was not in that time a wolf left in the kingdom.

The value of the sheep rose in proportion to the number propagated and preserved: for, with the increase in the quantity of wool, the number of manufacturers increased, and the demand for it enlarged. The same author, who tells us that in 720, in the time of Ina, an ewe and her lamb together were valued at only a shilling in the best season, shews us that in 1000, under the reign of Ethelred, a sheep alone was worth a shilling, without any restraint of season. This shilling was Saxon money.

This shews that the value of sheep rose, but it also shews that it was but slowly. No exportation of wool, or woollen cloth, is yet heard of in the market at home, and people principally wrought up the produce for the service of their own families.

A hundred years after we find, by an accidental passage, that the value of sheep was rather decreased than increased, so that we may see the working up the wool did not thrive very fast. The black book which contained the taxation of every man, towards the support of the King's household, there mentions money as an equivalent for cattle, and the sum on each article is stated. Ten years before this time we find, that if a sheep was lost, the damage was estimated at five-pence, but on this occasion the price laid upon him who chose to pay his tax in money, instead of cattle, was only four-pence in the place of one sheep.

Pursuing this subject in the old records, we find the sheep more numerous in all the succeeding reigns, and we see their value increasing constantly with their number. In the time of Henry the First, about the year 1120, forty sheep were valued at one pound.

In 1185 an antient record tells us, that by the custom of Be-

leshal, the tenants of Sherborn were, on certain occasions, to make their acknowledgement by delivering a ram, but if they chose to pay in money, the price was fixed at eight-pence.

The reader is not to imagine that this price established upon sheep, had regard to their flesh for food, without respect to the wool: it is true that all historians are silent upon the progress of that commodity and its manufacturers, but we have, a few years thereafter, a memorable instance of the regard shewn to it as a national commodity.

Richard the First, in the year 1193, returning from the holy war, was taken prisoner by the Duke of Austria. A vast ransom was required, and toward raising it one year's wool was demanded from two of our abbeyes. This is a passage recorded by Rapin, and all the common historians, and is supported on the best authorities: and this shews, that we have not had any regular account transmitted to us of the progress of this article of commerce; that all the time the price of sheep was increasing, the value of wool was rising, and that this was the principal cause of their increase in value: and we find that at this period wool was become the first commodity of the island: the thing next named in purchases to money.

Till this time we hear, as above-mentioned, nothing of any use of wool, except for our home consumption, but this transaction seems to have opened the eyes of the neighbouring nations. Having received English wool in payment, they found it excellent, and they began to think of it as a purchase. The pastures of Britain now shewed the world their excellence for the feeding this useful animal, and the husbandmen began to acquire a reputation for its management. Exportation of wool became a common practice, and the article from this time grew so important, that it was the great source on all emergencies. It was the land tax and the malt bill of those early periods.

The first notice of its exportation is in the year 1198, only five years from the time of Richard's ransom.

In this year we find, in Maddock's history of the exchequer, that Gervase de Aldermanbury, rendering an account of the chamberlainship of London, gives in this singular and important article: fines from merchants for permission to export wool and leather twenty three pounds twelve shillings.

At the same time that quantities of wool began to be exported, the manufacturing of it at home increased. The same exchequer account gives a list of several sums by the sale of wool at home; of twenty pounds from one person, and of two hundred and twenty-five marks from the seizure of a quantity that was

was attempted to be smuggled out of the kingdom, or exported without paying the fine for leave.

This is an article recorded in the same author, and it tends very happily to the shewing the real price of wool in England at that time. The quantity of wool seized on this occasion was 45 sacks. Each sack we find was valued at five marks, and each sack contained twenty-six stone of wool. This settles the price of wool in England, in the latter part of the reign of Richard the First, at little more than two and six-pence a stone. This two and six-pence was, at that time, one-eighth of a pound of silver, and was equal to about three times that quantity or weight of silver now; that is, to seven shillings and six-pence.

The reader will, not blame us for descending to particulars in a point of this curiosity and importance. We shall endeavour to trace the history of this commodity from the best records of earlier time, and shew him its advances and decline under the different encouragement or oppression of its manufacture.

About thirty years after the English found the way of serving their neighbours with our wool, we improved so far in our own manufactures of it, as to get into the art of dying. At first wool was only wrought up in a coarse plain way for the cloathing of the farmer and his family; by degrees those who best understood the working of it up, brought what they had to spare from the service of their family to market; but all this time the wool was only wrought up as it was furnished by the sheep, and all cloth was of the same colour.

They found those who imported wool and woollen cloth from us, in its natural colour, dyed it at home; and they soon learned the art of doing the same here. We read in the statute-book, that in the ninth year of Henry the Third, dyed cloth was limited by a certain law, as to its quantity and measure.

Our wars with France, and other difficulties, broke in upon the progress of our national trade in 1242. The persons and effects of the English merchants in France, and those of the French merchants in England, were seized in consequence of hostilities between the two nations; and in 1275, all commerce was prohibited between England and Flanders, upon a like account; but upon this occasion we find an instance of the great height to which the wool trade of England was arrived at that time, for a few Flemish merchants were permitted to carry over a quantity of English wool with them, paying the King for the permission. This quantity was no less than a thousand and sixty-eight sacks, and the price for leave of exportation was

ten shillings a sack. We see by this how swift a progress the commerce of the kingdom, in this article, had made, when the husbandmen understood the value of the commodity; and the legislature encouraged its manufacture.

We find by the accounts here given, how little historians and others have considered this important article. Those who speak of the manufacture of broad cloths in England, follow one another in placing the time of their being first made at the year 1331. We see from this circumstance, countenanced by the statute book, an unerring guide, that they were not only made but dyed so early as in the year 1220, one hundred and eleven years before that time; and probably the origin of the manufacture was much earlier than that.

The quantity of wool our country produced soon after, is to be guessed from the vast exportation we have named under those Flemish merchants; and this is punctually recorded by Rymer.

In 1284, foreign merchants were permitted to establish themselves in the kingdom, for the encouragement of the woollen manufactures. They had till this time been obliged to lodge in the Houses of our own people, and could not trade otherwise than by making their landlords their brokers; but now they were permitted to traffick in their own names; and the privilege granted to them was of the utmost benefit to the trade.

In 1291, Sandwich in Kent was made the general market, by an act of Edward the first, and so vastly did the trade increase, and the manufacture flourish, that but five years after this the custom upon it was raised from twenty to forty shillings a bag; and the traffick was able to support it.

This demand was indeed repealed, but not because it would have ruined the trade, but because it was made by the King's sole power. That was a stroke too arbitrary for those days of virtuous liberty: the merchants exclaimed against it, and they obtained a release from the absolute exaction, the additional duty being charged by this act upon them with such limitations, that it was in a manner dependent on their pleasure; and soon afterwards it was left to the determination of Parliament.

A few years after this we find the traffick for wool and woollen manufactures very flourishing in London; and several of the sea-port towns: the King's duty upon exported wool was established upon it according to the weight; and the scales for weighing it in all parts were made by those in London, and delivered in a solemn manner by the Lord Mayor into the exchequer, to be sent to their respective places.

In 1297, the wars with France demanding a great supply, the woollen trade was so flourishing that recourse was had to it. The Parliament granted for two or three years forty shillings a sack upon wool. This was the exaction that had occasioned so much disturbance at first; but now it was legally established and regularly paid. The King promised never to demand more than the old duty, without consent of Parliament; and the woollen trade flourished under this large drawback, and the disadvantages of a war together.

These were times of virtuous government. The King was thankful to his subjects for so large a supply, and he was happy to find that the woollen trade could bear it: but he demanded it no longer than it was required by the exigencies of the state, on account of which it was raised. He called a parliament, and of his own free accord gave up the additional duty, publishing a proclamation that no more than the old sum should any where be demanded.

The price of sheep now naturally rose with the value of their wool, but still the number made some alteration. We read in Thorn of 3s. a-piece being given for three hundred sheep; but it was at an installation feast, 1309. The current price about that time was much less, as we find in the acts of the common council of London, and in Dugdale.

In the year 1315, we find the price of sheep established in such a manner, as to give us a fair insight into the value of wool at that period. The sheep, if delivered shorn, was fixed at fourteen-pence; if unshorn at twenty-pence, but we must not extend this consideration farther than to the value of the wool, for it was a time of famine.

From this period the woollen trade became an object more than ever of the public concern. Persons of all nations, who could improve the manufacture of broad cloth, were encouraged to come over; and among numbers brought under great encouragements from Flanders, Brabant, and Zealand, there were some so worthy of the advantages they received; that they soon set the trade upon a most respectable footing abroad, and upon the most profitable foundation at home.

In consequence of the greater and more profitable traffick in this article, the price rose; and the more assistances were drawn from it for the state: in Edward the third's reign, toward the end, we read of subsidy after subsidy on wool: and in Richard the second's reign more subsidies were demanded: the traders complained, and the matter being candidly examined, it appeared, that though they were not wholly without reason of complaint,
yet

yet the trade could bear additional loads, and that they might raise fortunes.

In the reign of Henry the fourth, the sanction of parliament granted to the King, for a limited time, a subsidy of fifty shillings upon every sack of wool belonging to the natives, and four pounds on those of strangers exported; and such was the produce of wool in Britain at that period, and such the foreign demand for it, that the quantity exported was not less than a hundred and thirty thousand packs in a year: and in Richard the second's time the subsidy had amounted to a hundred and sixty thousand pounds. This is related by Pryn, and the other historians, and is supported on the best authorities.

The same subsidy that had been granted to Henry the fourth, was allowed for four years in Henry the fifth's time.

In the reign of Henry the sixth we find 33s. 4d. a sack allowed to the King on the natives property in this article; and 43s. 4d. on that of strangers. The woollen trade increased under all this demand; and Norwich about this time became eminent in it.

In the former reigns the large subsidies on wool had been granted only for two, three, or four years, in time of necessity; but in the reign of Edward the fourth, the charge of thirty-three shillings and four-pence on the wool of the natives, and of three pounds six shillings and eight-pence on that of strangers, even the naturalized, was granted to him for life.

Even this proved no check to the traffick. Enclosures became more frequent; the land was more improved, the manage of the catle and their cattle was better understood; and England carried the praise for this article before all other nations.

In the reign of Richard the third, though the traffick was encumbered with large subsidies, it increased continually. In the succeeding reign of Henry the seventh, the greatest regard was shewn to trade in every article, in none more than this. The exportation of wool was limited, and the manufacture of cloths increased accordingly.

In Henry the eighth's reign the produce of wool was greater than at any time before; and its price increased with the quantity; such was the demand for it abroad, and such the consumption of it at home. Farmers were laid under certain limitations as to the number of sheep they were allowed to keep; but these were very extensive ones; and we may see by the account preserved of this transaction, and of the price of things at that time, to what an advance the care of that animal, and the price of its flesh and wool, had risen.

No

No one was to have more than 2000, but this with many exceptions. The statute, by way of reason, recites "The advanced price of all the native commodities in the kingdom. That some persons had at that time vast numbers of sheep, which for victual had risen in price from two shillings and four-pence or at the most three shillings, to six shillings, or five shillings, or four shillings at the least; and that a stone of cloathing, heretofore in some shires accustomed to be sold for eighteen-pence or twenty-pence, had risen to four shillings, or three shillings and four-pence at least. In others, where it had been sold for two shillings and four-pence, or two shillings and eight-pence, or three shillings at the most, it was then sold for five shillings or four shillings and eight-pence the least."

If we look back to the prices of wool in the thirteenth and fourteenth of Edward the third, which was near two hundred years before, the lowest, viz. the wools of Cumberland and Westmoreland, were sold for above two shillings per stone, exclusive of the duty, which was something more than one shilling and six-pence per stone; and those of Salop, at better than four shillings and ten-pence per stone, in like manner. So that in fact, there seems to have been at this time no advance in the price of wool from the period just mentioned: but very much the contrary, considering that the shilling was then two hundred and sixty-four grains; and at this time, but one hundred and eighteen. Nor was it any advance from the cheap price of which H. Knygton speaks, because the shilling was then two hundred and thirteen grains. Much less was wool dearer at this time, than in the fourth of Henry the VIth. The price being then not only nearly equal to the highest rate mentioned in this act, but the shilling then, at the lowest, contained twenty-four grains more than at the time of the act; and therefore we are to suppose the complaint then made, concerning the dearth of wool, to have had respect to some intermediate later times, in which the price of wool does not now appear; and which was probably occasioned by the monopolizations of the merchants of the staple, and the manufacturers.

As to the price of victual, it will not be amiss to insert here a little piece of history, which Bishop Fleetwood takes from Mr. Stow, in the year one thousand five hundred and thirty-three. It was that year enacted, "That butchers should sell their beef and mutton by weight: beef for a half-penny the pound; and mutton for three farthings: which being devised for the great commodity of the realm, as it was thought, proved far otherwise. For at that time, i. e. one thousand five hundred

" hundred and thirty three, fat oxen were sold for twenty-six
 " shillings and eight-pence, fat wethers for three shillings and
 " four-pence, fat calves for the like price; and a fat lamb for
 " twelve-pence. The butchers sold penny pieces of beef, for
 " the relief of the poor, every piece two pounds and a half,
 " sometimes three pounds. And thirteen, sometimes fourteen,
 " of these pieces for twelve-pence. Mutton eight-pence the
 " quarter, & a hundred weight of beef for four shillings & eight-
 " pence. What price it has grown to since need not be set
 " down. At this time also, and not before, were foreign
 " butchers permitted to sell their flesh in Leadenhall-market of
 " London." I suppose by foreign butchers, he means such as
 " lived not, or had not served their apprenticeship in London."

[To be concluded in our next.]

ART. X. *On planting Fruit Trees in Hedges.*

Mr. SYLVAN,

I HAVE often wondered that almost every farmer does not
 plant apple and pear trees in the hedge-rows of his farm; the
 answer, that the fruit would be stolen, would be obviated, if all
 were to pursue so very advantageous a plan; especially now
 malt is advancing so high in duty as to be very sensibly felt by
 all who are Farmers, as well as your humble servant,

Waltham, Berks,

X. Y. Z.

ART. XI. *Query relating to Buck-wheat.*

Mr. SYLVAN,

I With some of your correspondents would from experience
 declare, whether a crop of Buck Wheat harvested would
 not improve Land, and be a preparation for Wheat, as well
 as if the plants were ploughed in when in flower. From what
 I have seen myself, I think the Crop of Wheat has been as
 good after the one as the other; but I want a real experiment
 to ascertain the fact.

Bath.

R. B.



T H E
FARMER'S MAGAZINE.

J U N E, 1780.

A DISSERTATION *on the Progress and present State of*
AGRICULTURE. [Continued.]

E U R O P E.

BUT it will be asked whether a great degree of population is of use to promote the happiness of mankind. This is an idle question. In fact, the point is not to multiply men, in order to make them happy;—it is sufficient to make them happy, that they should multiply. All the means which concur in the prosperity of any state, tend of themselves to the propagation of its people. A legislator, desirous of an increase of people merely to have a greater number of soldiers, and of subjects only for the purpose of subduing his neighbours, would be a monster, and an enemy to the human race, since his plans of political increase would be solely directed to the destruction of others. A legislator, on the contrary, who, like Solon, should form a republic, whose multitudes might people the desert coasts of the sea; or who like Penn, should make laws for the cultivation of his colony, and forbid war, such a legislator would undoubtedly be considered as a God on earth. Even though his name should not be immortalized, he would live in happiness, and die contented, especially if he could be certain of leaving behind him laws of such wisdom as to free his people for ever from the vexation of taxes.

A tax may be defined—a sacrifice of a part of a man's property for the preservation of the other : from hence it follows, that there should not be any tax either among people in a state

" hundred and thirty three, fat oxen were sold for twenty-six shillings and eight-pence, fat wethers for three shillings and four-pence, fat calves for the like price; and a fat lamb for twelve-pence. The butchers sold penny pieces of beef, for the relief of the poor, every piece two pounds and a half, sometimes three pounds. And thirteen, sometimes fourteen, of these pieces for twelve-pence. Mutton eight-pence the quarter, & a hundred weight of beef for four shillings & eight-pence. What price it has grown to since need not be set down. At this time also, stands not before, were foreign butchers permitted to sell their flesh in Leadenhall-market of London. I suppose by foreign butchers, he means such as lived not, or had not served their apprenticeship in London."

[To be concluded in our next.]

ART. X. On planting Fruit Trees in Hedges.

Mr. SYLVAN.

I HAVE often wondered that almost every farmer does not plant apple and pear trees in the hedge-rows of his farm; the answer, that the fruit would be stolen, would be obviated, if all were to pursue so very advantageous a plan; especially now mast is advancing so high in duty as to be very sensibly felt by all who are Farmers, as well as your humble servant,

Waltham, Berks.

X. Y. Z.

ART. XI. Query relating to Buck-wheat.

Mr. SYLVAN.

I With some of your correspondents would from experience declare, whether a crop of Buck Wheat harvested would not improve Land, and be a preparation for Wheat, as well as if the plants were ploughed in when in flower. From what I have seen myself, I think the Crop of Wheat has been as good after the one as the other; but I want a real experiment to ascertain the fact.

Bath.

R. B.

of slavery, or among savages, for the former no longer enjoy any property, and the latter have not yet acquired any.

But when a nation possesses any large and valuable property, when its fortune is sufficiently established, and is considerable enough to make the expences of government necessary, when it has possessions, trade, and wealth capable of tempting the avidity of its neighbours who may be poor or ambitious; then, in order to guard its frontiers, or its provinces, to protect its navigation, and keep up its police, there is a necessity for forces and for a revenue. It is but just and requisite, that the persons who are employed in any manner for the public good, should be maintained by all the other orders of the society.

There have been countries and times, in which a portion of the territory was assigned for the public expences of the state. The government, not being enabled of itself to turn such extensive possessions to advantage, was forced to entrust this charge to administrators, who either neglected the revenues, or appropriated them to their own use. This practice brought on still greater inconveniences. Either the royal domains were too considerable in time of peace, or insufficient for the calls of war. In the first instance, the liberty of the state was oppressed by the ruler of it, and in the latter, by strangers. It has, therefore, been found necessary to have recourse to the contributions of the citizens.

These funds were in early times not considerable. The stipends then allowed were merely an indemnification to those whom public affairs prevented from attending to those employments that were necessary for their subsistence. Their reward arose from that pleasing sensation which we experience from an internal consciousness of our own virtue, and from the view of the homage paid to it by other men. This moral wealth was the greatest treasure of rising societies: a kind of coin which it was equally the interest of government and of morality not to diminish the value of.

Honour held the place of taxes no less in the flourishing periods of Greece, than in the infant state of societies. The patriot, who served his country, did not think he had any right to destroy it. The imposts laid by Aristides on all Greece, for the support of the war against Persia, was so moderate, that those who were to contribute, of themselves, called it *the happy fortune of Greece!* What times were these, and what a country, in which taxes made the happiness of the people!

The Romans acquired power and empire almost without any assistance from the public treasury. The love of wealth would
have

have diverted them from the conquest of the world. The public service was attended to without any views of interest, even after their manners had been corrupted.

Under the feudal government, there were no taxes, for on what could they have been levied? The man and the land were both the property of the Lord. It was both a real and a personal servitude.

When knowledge began to flourish in Europe, the nations turned their thoughts towards their own security. They voluntarily furnished contributions to repress foreign and domestic enemies. But those tributes were moderate, because princes were not yet absolute enough to divert them to the purposes of their own capricious humours, or to the advantage of their ambition.

The new world was discovered, and the passion for conquest engaged every nation. That spirit of aggrandizement was inconsistent with the slowness with which affairs are managed in popular assemblies; and sovereigns succeeded without much difficulty in appropriating to themselves greater rights than they had ever before enjoyed. The imposition of taxes was the most important of their usurpations, and it is that whose consequences have been the most pernicious.

Princes have even ventured to render the marks of servitude apparent upon all their subjects, by levying a poll-tax. Independent of the humiliation it is attended with, can any thing be more arbitrary than such a tax?

Is the tax to be levied upon voluntary information? But this would require between the monarch and his subjects an attachment to each other arising from a principle of duty, which should unite them by a mutual love of the general good; or, at least, a regard to the public welfare, to inspire the one with confidence in the other, by a sincere and reciprocal communication of their intelligence, and of their sentiments. Even then, upon what is this conscientious principle to be founded, which is to serve as an instructor, a guide, and a check, in the affairs of government?

Is the sanctuary of families, or the closet of the citizen to be invaded, in order gain by surprise, and bring to light, what he does not chuse to reveal, what it is often of importance to him not to discover. What an inquisition is this! What an injurious violence! Though we should even become acquainted with the revenues and means of subsistence of every individual, do they not vary from one year to another with the uncertain and precarious productions of industry? Are they not lessened

by the increase of children, by the decay of strength through sickness, age, and laborious occupations. The very faculties of the human species, which are useful and employed in laborious occupations, do they not change with those vicissitudes occasioned by time in every thing that depends on nature and fortune? The personal tax is a vexation then to the individual without being a general benefit. A poll-tax is a sort of slavery, oppressive to the man, without being profitable to the state.

After princes had imposed this tax, which is a mark of despotism, or which leads to it sooner or later, imposts were then laid upon articles of consumption. Sovereigns have affected to consider this new tribute as in some measure voluntary, because it rises in proportion to the expences of the subject, which he is at liberty to increase or diminish according to his abilities, or his propensities, which are for the most part factitious.

But if taxation affect the commodities which are of immediate necessity, it must be considered as an act of the greatest cruelty. Previous to all the laws of society, man had a right to subsist. And is he to lose that right by the establishment of laws? To sell the produce of the earth to the people at a high price, is in reality to deprive them of it: to wrest from them by a tax the natural means of preserving life, is in fact to affect the very principle of their existence. By extorting the subsistence of the needy, the state takes from him his strength with his food. It reduces the poor man to a state of beggary; and the labouring man to that of idleness; it makes the unfortunate man become a rogue; that is, it is the cause of bringing the man who is ready to starve to an untimely end, from the extreme distress to which he is reduced.

If the imposts affect commodities less necessary, how many hands lost to tillage and the arts are employed, not in guarding the bulwarks of the empire, but in crowding the kingdom with an infinite number of useless barriers; in embarrassing the gates of towns; infesting the highways and roads of commerce; and searching into cellars, granaries, and store-houses! What a state of war between prince and people, between subject and subject! How many prisons, gallies, and gibbets, prepared for a number of unhappy persons who have been urged on to fraudulent practices, to smuggling, and even to piracy by the iniquity of the revenue laws!

The avidity of sovereigns has extended itself from the articles of consumption to those of traffic carried on from one state to another. Insatiable tyrants! Will ye never be sensible,

fible, that if ye lay duties on what ye offer to the stranger, he will buy at a cheaper rate, he will give only the price demanded by other states: if even your own subjects were the sole proprietors of that produce you have taxed, they still would never be able to make other nations submit to such exactions; for in that case the demand would be for a less quantity, and the over-plus would oblige them to lower the price, in order to find a sale for it.

The duty on merchandise, which one state receives from another, is not less unreasonable. The price of the goods being regulated by the competition of other countries, the duties will be paid by the subjects of that state which buys commodities for its neighbours. Possibly, the increase in the price of foreign produce may diminish the consumption of it. But if a less quantity of merchandise is sold to any country, a less quantity will be purchased of it. The profits of trade are to be estimated in proportion to the quantity of merchandise sold and bought. Commerce is in fact nothing more than an exchange of the value of one commodity for that of another. It is not possible then to oppose the course of these exchanges, without lowering the value of the productions that are sold, by restraining the sale of them.

Whether therefore duties are laid on our own or on foreign merchandise, the industry of the subject will necessarily suffer by it. The means of payment will be fewer, and there will be less raw materials to work up. The greater diminution there is in the annual produce, the greater also will be the decrease of labour. Then all the laws that can be made against beggars will be ineffectual, for man must live on what is given him, if he cannot live by what he earns.

What is the mode of taxation the most proper to conciliate the public interest with the rights of individuals? It is the land-tax. An impost is, with respect to the person upon whom it is charged, an annual expence. It can only, therefore, be assessed on an annual revenue; for nothing but an annual revenue can discharge an annual expence. Now there never can be any annual revenue, except that of the land. It is land only which returns yearly what has been bestowed upon it, with an additional profit that may be disposed of. It is but within these few years that we have begun to be sensible of this important truth. Some men of abilities will one day be able to demonstrate the evidence of it: and that government which first makes this the foundation of its system, will necessarily be
raised

raised to a degree of prosperity unknown to all nations and all ages.

If in this age the tax were first laid on the land, would it not necessarily be supposed that the contribution should be proportioned to the extent and value of the estates? Would any one dare to alledge his employments, his services, his dignities, in order to screen himself from the tributes exacted by the public weal? What connection have taxes with ranks, titles, and conditions? They relate only to the revenue: and this belongs to the state, as soon as it becomes necessary for the public defence.

That taxes may not be exorbitant, they should be ordered, regulated, and administered, by the representatives of the public. The impost has ever depended on, and must be proportioned to the property possessed. He that is not master of the produce is not master of the field. Tributes, therefore, among all nations have always been first imposed by the proprietors only; whether the lands were divided among the conquerors, or the clergy shared them with the nobles, or whether they passed by means of commerce and industry into the hands of the generality of the citizens; every where, those who were in possession of the lands had reserved themselves the right of not being taxed without their own consent. If we do not admit this principle, there is no longer any monarchy, or any nation.

Ye people, whose kings command every thing they please, read over again the history of your own country. Ye will see that your ancestors assembled themselves and deliberated whenever a subsidy was in agitation. If this custom is neglected, the right is not lost; it is recorded in heaven, which has given the earth to mankind to possess; it is written on the field you have taken the pains to inclose, in order to secure to yourselves the enjoyment of it: it is written in your hearts, where the Divinity has impressed the love of liberty. Man, whose head is raised towards heaven, was not made in the image of his creator to bow before man. No man is greater than another, but by the choice and consent of all. Ye courtiers, your greatness arises from your lands, and not from the power and state of your master. Be less ambitious, and ye will be richer. Do justice to your vassals, and you will improve your fortunes by increasing the general happiness.

If the right of imposing taxes be in the prince alone, though it may not be for his interest to burden and oppress his people, yet they will be burdened and oppressed. A false and cruel
system

system of politics will soon persuade him that rich subjects will always become insolent ; that they must be distressed, in order to be reduced to subjection; and that poverty is the firmest rampart of the throne. He will proceed so far as to believe that every thing is at his disposal, that nothing belongs to his slaves, and that he does them a favour in every thing he leaves them.

The government will appropriate to itself all the means and resources of industry; and will lay such restraints on the exports and imports of every article of trade, as will entirely absorb the profits arising from it. Commerce will be carried on by the means and for the benefit of the treasury. Cultivation will be neglected by mercenaries who can have no hopes of acquiring property. The nobility will serve in the army only for pay. The magistrate will give judgment only for the sake of his fees and his salary. Merchants will hoard up their fortunes in order to transport them out of a land where there is no spirit of patriotism, nor any security left. The nation, then losing all its importance, will conceive an indifference for its kings; will see its enemies only in those who are its masters; will be induced to hope that a change of master will tend to alleviate its servitude; will expect its deliverance from a revolution, and the restoration of its tranquillity from an entire overthrow of the state.

Let us now speak of a resource, which sovereigns turn to the ruin of their people : that is, Public Credit.

In general, what is called public credit, is only a delay allowed for payment. Credit then supposes a double confidence; confidence in the person who is in want of it, and confidence in his abilities to pay. The first is the most necessary. It is too common for a man in debt, who is destitute of honesty, to break his engagements, though he is able to fulfil them; and to dissipate his fortune by irregularity and extravagance. But the sensible and honest man may, by a variety of schemes well conducted, acquire or replace the means that have failed him for a time.

The chief end of Commerce is consumption, but before commodities have reached the places where they are to be consumed, a considerable time often passes, and great expences must be incurred. If the merchant is compelled to make his purchases with ready money, commerce will necessarily decline. The seller as well as the buyer will be equally sufferers by it. These considerations have given rise to private credit among the individuals of one society, or even of several societies.

societies. It differs from public credit in this particular, that the latter is the credit of a whole nation considered as forming one single body.

Between public and private credit there is also this difference, that profit is the end of the one, and expence of the other. From hence it follows, that credit is gain with respect to the merchant ; because it furnishes him with the means of acquiring riches ; but with respect to governments, it is one cause of impoverishing them, since it only supplies them with the means of ruining themselves. A state that borrows, alienates a portion of its revenue for a capital which it spends. It is then poorer after having thus borrowed, than it was before it had recourse to that destructive expedient. Notwithstanding the scarcity of gold and silver, the governments in former ages were unacquainted with public credit, even in the periods of the most fatal and critical events. They formed during peace a stock that was reserved for times of distress. The specie being by this method circulated afresh, excited industry, and alleviated, in some measure, the inevitable calamities of war. Since the discovery of the New World has made gold and silver more common, those who have had the administration of public affairs have generally engaged in enterprises above the abilities of the people they governed ; and have not scrupled to burthen posterity with debts they had ventured to contract. That system of oppression has been continued ; it will affect the latest generations, and oppress all nations and all ages.

The use of public credit, though ruinous to every state, is not equally so to all. A nation that has several valuable productions of its own ; whose revenue is entirely free ; which has always fulfilled its engagements ; nor has been ambitious of making conquests ; and which is not dependent upon a foreign power for its government ; such a nation will raise money at an easier rate, than a state whose soil is not fertile ; whose debts are considerable, and which engages in undertakings beyond its strength ; which has deceived its creditors, and groans beneath an arbitrary power. The lender, who of course imposes the law, will always proportion the terms to the risks he must run. Thus, a people, whose finances are in a state of confusion, will soon fall into the utmost distress by public credit : but even the best regulated government will also experience a decline in its prosperity from it.

[To be continued.]

ART. II.

*To the Right Honourable the EARL of STAMFORD,
President to the Agriculture Society at Manchester.*

MY LORD,

THE following account of a new method of making Pot-ash was lately read before the Royal Society, and will be inserted in the next publication of that learned body. But as the discovery is highly interesting to the Farmer, and the Philosophical Transactions are in few hands, I take the liberty of communicating it to the Agriculture Society.

I have the honour to be,

My Lord, your Lordship's most faithful humble Servant,
Manchester,
April 19, 1780.

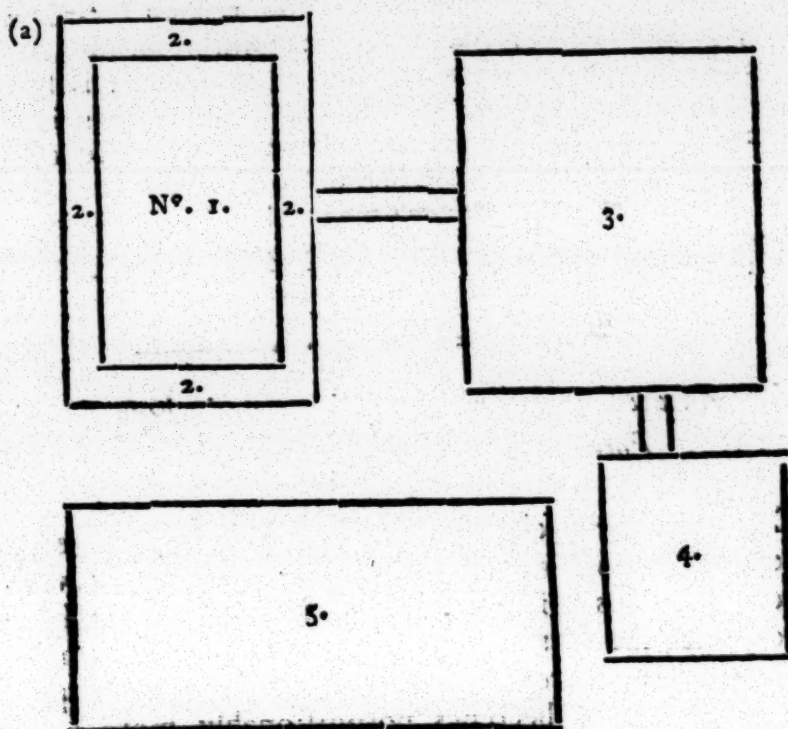
THOMAS PERCIVAL.

ART. II. *An account of a new and cheap method of preparing
Pot-ashes; with Observations.*

THE Agriculture Society at Manchester have long recommended the making of reservoirs, for the water which flows from dunghills in farm-yards. This water is strongly impregnated with the salts, and putrid matter of the dunghill; and by stagnation, it acquires a much higher degree of putrescency, and probably becomes proportionably more replete with salts. When thus collected and improved, it is pumped into a hoghead, which, being drawn upon a sledge or small cart, is conveyed into the meadows, for the purpose of sprinkling them with this rich manure. This important improvement in rural œconomy, I apprehend, has not been extended much beyond the district of our society; and it seems to be unknown to one of the latest and most intelligent writers on husbandry. For Lord Kaims, in a recent work on this subject, of which he has favoured me with a copy, has not even mentioned it.

But these reservoirs may be applied to a purpose still more subservient to public utility, than that above described. Josiah Birch, esq; a gentleman, who carries on an extensive manufactory, and bleaches his own yarn, about six months ago, was induced, by a happy turn of thought, to try whether the dunghill water might not be converted into pot-ashes. He accordingly evaporated a large quantity of it, and burnt the residuum in an oven; the product of which so perfectly answered his expectations, that he has ever since continued to prepare these ashes, and to employ them in the process of bucking. A stranger to that narrowness of spirit, which seeks the concealment

of a lucrative discovery, he is desirous that it should be communicated to the Royal Society, and has furnished me with the following account, together with the plan annexed.



“ The quantity of muck water used was twenty-four wine
 “ pipes full; which employed a man and two horses two days,
 “ to cart it from the pump to the pan wherein it was boiled :
 “ but this expence I shall now save; as I shall lay a fough of
 “ brick, which will convey it from the pump to the boiler.
 “ The coals used to boil and burn it, were one hundred and
 “ twenty baskets; and I suppose each basket weighs six score
 “ pounds, or upwards. One man was occupied three weeks
 “ in boiling and burning. The quantity of ashes made, was
 “ 9 Cwt. 1 Q. 12 lb; well worth, at the present price of ashes
 “ here, two guineas per hundred.

„ 9 Cwt.

(a) “ No. 1. The dunghill

“ 2. A fough, or drain, round the bottom of the dunghill.

“ 3. A hole, or pit, to receive the muck water from No. 1.

“ 4. A well, to receive the muck water from the pit, wherein a pump is
 “ fixed to convey it to the pan, No. 5. in which it is boiled to the consistence of
 “ treacle, and afterwards burned in an oven. The pan, No. 5. is formed at
 “ the bottom of iron plates; and turned up a little round the edges, to which
 “ deal planks are screwed, so as to make it about twenty inches in depth.”

" 9 Cwt. 1. Q. 12lb. at 42s. per Cwt.	—	£ 19 13 0
" A man and two horses two days, at 6s.	£ 0 12 0	
" 120 baskets of coals, at 5d. per basket,	2 10 0	
" A man's wages for three weeks, -	1 7 0	
		£ 4 9 0
		£ 15 4 0

" The grain therefore amounts to £ 15 : 4 : 0, deducting only a trifle for the wear of the pan and oven."

The profits arising from this preparation of pot-ash are sufficiently evinced by the foregoing estimate; and they may, perhaps, admit of increase by future improvements. In the spring and summer seasons, I should suppose, the evaporation might be carried on without the aid of fire; by conveying the dunghill water from the reservoir, through proper sluices, into shallow troughs or ponds, of such extent as to afford a sufficient surface for the action of the sun and wind. (b) These might be covered in rainy weather with awnings of canvass, painted on the outside black, and white on the inside; the former with a view to absorb, the latter to reflect, the rays of light.

This pot-ash is of a greyish white appearance, deliquesces a little in moist air, but if kept in a dry room near the fire, acquires

(b) The following abridged view of a meteorological register, which I kept with great exactness during the years 1774, and 1775, may throw some light on the practicability of this plan in the climate of Lancashire, which, I believe, is nearly the same as that of most of the other western counties of England.

1774.		1775.		
Months.	Thermometer. 2 o'Clock P.M. Highest. Lowest.	Days. Rainy, Dry.	Thermometer. 2 o'Clock P.M. Highest. Lowest.	Days, Rainy, Dry.
Jan. Feb.	56 28	25 65	54 30	61 29
Mar. Apr.	72 45	55 36	78 51	42 59
May, June	75 53	66 26	74 48	62 30
July, Aug.	70 30	43 49	64 32	50 28*
Sep. Oct.	52, 25	189 176	55, 7	215 136
Nov. Dec.	Mean heat.		Mean heat.	



* 14 days omitted;
no account being
taken.

* 14 days omitted;
no account being
taken.

The Thermometer was made by Dollond, and graduated according to the scale of Farenheit. It was placed in the open air, and in a northern exposure. The column of rainy days expresses the least as well as the greatest quantity of rain; the column of dry includes only those days in which not a single shower was noticed. The day comprehends twenty-four hours. About thirty-three inches of rain, at a medium, fell yearly in Manchester.

quires a powdery surface. It is hard, and of a spongy texture when broken, with many small crystals in its substance. The colour of its internal parts is dusky, and variegated. To the taste, it is acrid, saline, and sulphureous. It emits no smell of volatile alkali either in a solid form, dissolved, or when added to lime-water; neither does it communicate the sapphire colour to a solution of blue vitriol. Silver is quickly tinged black by it, a proof that it contains much phlogiston. Ten grains of this pot-ash required eleven drops of the weak spirit of vitriol to saturate them: the like quantity of salt of tartar required, of the same acid, twenty-four drops. A strong effervescence occurred in both mixtures: from the former, a sulphureous vapour was exhaled. A tea-spoonful of the syrup of violets diluted with an ounce of water, was changed into a bright green colour by five grains of the salt of tartar; but ten grains of this new pot-ash were necessary to produce the same hue in a similar mixture. Half an ounce of the pot-ash, dissolved entirely in half a pint of hot water; but when the liquor was cold, a large purple sediment subsided to the bottom: and it was found, that this sediment amounted to about two-thirds of the whole quantity of ashes used.

I have not leisure at present to prosecute these experiments farther; and shall therefore content myself with making a few general observations on the facts which have been advanced.

1. This pot-ash is a true fixed vegetable alkali, and a product of putrefaction which has not, that I recollect, been noticed by the chymists. A very celebrated writer has even in express terms asserted, that "all vegetables, not excepting those which in their natural state furnish ashes containing much fixed alkali, when burnt, after their acid has been altered by a complete putrefaction, leave ashes entirely free from alkali." (c)

2. The quantity of alkali contained in this pot-ash may, with some probability, be estimated at about one-third of its weight; whereas the white Muscovy ashes are said to yield one eighth part. (d) Of its impurities, sulphur is the most injurious to its bleaching powers, and should, in the preparation of it, be carefully separated. A longer-continued, and more gentle calcination, in a furnace supplied with a sufficient current of air, might, perhaps, answer this end. But the most effectual method would be to lixiviate the salts with pure water, after a moderate fusion, and then to evaporate them slowly to dryness. It must however be remarked, that in thus freeing the pot-ash from

(c) Macquer's Dictionary of Chemistry, article ALKALI.

(d) Home on Bleaching, page 157.

from phlogistic matter, another impurity is generated. For both the action of fire, and the solution in water, convert into earth a portion of the alkaline salt.

3. No quick-lime appears to be contained in this pot-ash: for a solution of it, poured from its sediment, remained clear, though long exposed to the air. Nor did it acquire any milkiness by being blown into from the lungs. But perhaps the addition of this caustic substance, in a due proportion, would increase its activity and value, when employed in many of the arts. For the Russian pot-ash is more pungent to the taste, saturates a larger proportion of acid, and dissolves oils more powerfully, than the purer alkaline salts. And Dr. Home has proved, (e) that these qualities depend on a large admixture of quick-lime.

4. It would be worthy of trial, to ascertain whether the large purple sediment, which subsides when this pot-ash is lixiviated, might not be applied to the manufacture of Prussian blue; or used in the manner recommended by Mr. Macquer, for dying wool and silk. See the Memoirs of the French Academy for the year 1749. (f)

5. The farmer, though he live at a distance from the manufactures in which pot-ash is employed, may find his account in preparing it from dunghill water. For it will furnish him with a top-dressing for his garden and land, of great fertilizing powers. But if fuel be dear where he resides, and necessaries wanting for the construction of a furnace, the simple evaporation of the water may suffice. And the putrid lye, thus reduced to a solid form, will prove to be a rich manure. At Hart-hill, my summer abode, about three miles from Manchester, I have lately practised a method of making a compost of dunghill water. The weeds and rakings of the garden, the dressings of the fields, the leaves blown from the trees, and other refuse matters, are put together near the reservoir; out of which the water is occasionally pumped, and scattered over the heap. So strong a ferment almost instantly excites putrefaction; and these vegetable substances are soon converted into a fertile mould, which, retaining the salts and oils of the dunghill water, suffers the superfluous moisture to exhale into the air, or to percolate through it. And I have found by experience, that the compost thus prepared is laid on the meadows at less expence, and that it is more efficacious and durable in its operation, than the sprinklings which, at stated times, they formerly received.

For

(e) Essay on Bleaching. Neumann's Chemistry, by Lewis.

(f) See also Neumann's Chemistry, by Lewis.

For my land, though good, and in fine condition, is light and sandy; and the dunghill water quickly passed below the roots of the vegetables, which grow upon its surface.

P O S T S C R I P T.

It has been suggested to me, that the foregoing discovery has no claim to the patronage of the Agriculture Society, because, in this manufacturing county, it may eventually tend to check the cultivation of land, by robbing it of one species of manure. But I conceive the operation of it will be entirely the reverse: for it will promote the collection of every putrescent article, and thus augment the farmer's dunghill, at the same time that it excites a more universal attention to the preservation of muck water; the reservoirs for which are yet few, and have been made chiefly by those who follow husbandry for amusement, and not as an occupation. The public therefore will be gainers both by the saving, and by the acquisition; and a twofold branch of rural œconomy will be established, at once lucrative to the husbandman, and important to the artist and manufacturer.

But admitting all the supposed force of the allegation, it must surely be acknowledged, that the main design of our institution is to increase the productiveness of Agriculture, by stimulating the farmer to every beneficial undertaking, consistent with his profession. Now in this case, the beneficial is best measured by the Hudibrastic standard: for

“What's the value of a thing,

“But so much money as 'twill bring?”

I trust, therefore, that the Society will not, by declining to patronize the present discovery,* justify the sarcasm of an ingenious poet of this place, who has humorously charged some of us with teaching,

“By crops increas'd, and profits less,

“The way t' enrich the nation.”

ART. III. *Of the Wool Trade from the Time of Henry the Eighth; concluded from p. 160.*

WE have seen what a prodigious advance the wool of England made in the several preceding reigns, and we shall find it in this continue encreasing.

Husbandry

* A silver medal was voted to Mr. Birch, for the discovery; and the thanks of the society were voted to Dr. Percival for his account of it.

Husbandry had been in early times but very little understood in England; but the regard to this commodity, the demand for which was so considerable, and the price so large, gave a spirit to the people concerned in it.

In Edward the sixth's reign we seem to have had farmers in England, who understood the management of pasture ground so well, that it were happy if books had been written on the subject, which had perpetuated their improvements. The great benefit of enclosures was a little before understood fully, and they encreased in the reign of Edward the sixth. The care of the pasturage grew with the number of enclosures, and the thriving of sheep, and the price of wool, with it. That commodity sold in this reign dearer than in any of the preceding. Statutes were made from time to time, to encourage the manufacture of cloths, and marts were established by authority in different places.

In the reign of Philip and Mary, the subsidies granted to Edward the sixth were continued, only with a limitation in favour of naturalised strangers, or such as should be naturalised. Many good statutes were enacted in favour of the woollen manufactures in this reign; and it throve greatly under the prudent regulations that were established, and extended itself to many parts of the kingdom.

In Queen Elizabeth's time a subsidy was granted for life on this article, included in tonnage and poundage: many good statutes were made in that reign, and numbers of the French and Flemish engaged in the cloth trade, leaving their native country because of persecution, brought over their secrets, and increased our credit. In this reign wool unmanufactured rose from its former price of 13s. 4d. to 22s. a tod.

We may safely establish the period from the end of Edward the sixth's reign, to the end of Queen Elizabeth's, as the most flourishing of all times for the wool trade of England. It has never risen much higher since, and it has very often been much lower; in general, considerably below that standard.

Yet even in that time we were far from supplying all the world, or all Europe, with cloth; for there were many other countries very eminent in the same manufacture: this, therefore, as we have shewn before, is an imaginary notion; and it is altogether erroneous to suppose we ever did, or ever shall have that vast trade to ourselves. It is enough if we can get the superiority in the manufactures, which doubtless we may; and we may be very proud of our success, if we can yearly bring in such sums as it then raised; which were, moderately speaking, near three millions a year. In

In the time of James the first, wool afforded subsidies, and that largely. New regulations were made, and statutes enacted. Monopolies and oppressions were introduced, but the clamours of the people got the better of them: the desire of growing rich too fast became however general among the woollen dealers, and hurt the trade extremely: abuses were committed in the making cloth; and our credit in consequence declined, during this reign, in foreign markets. Proclamations were published to prevent the exportation of wool, and search was made into the nature of the abuses; but in vain. The manufacture dwindled, and the price of wool fell from thirty-three to eighteen shillings a tod.

The first years of King Charles the first's reign promised the revival of the woollen trade; but the disputes succeeding reduced it lower than ever. Proclamations now took the place of statutes; and the exportation of wool was forbid by several of them.

In 1640, wool was advanced again to twenty-four shillings the tod.

In 1671, many attempts were made to restore these manufactures to their former glory. The bad consequences of suffering our wool to be exported unmanufactured were shewn; and propositions made for gaining several hundred thousand pounds a year, by throwing that trade into a better method; but these were times in which men better knew what should be done, than how to do it.

In 1685, the French began to supply foreign markets with what they called English cloths. These had been made of English wool; and while that was, in despite of all remonstrances, suffered to be exported, and so many disadvantages laid on our manufactures at home, it was no wonder they could under-sell us in the same articles. The public attention was waked by this, the exportation of wool was absolutely prohibited, and great encouragements were given for the produce of wool, and for the working of it here into marketable manufactures. This raised the spirit of the people, and the advantage was soon seen; happy had it been if the measures so projected had been as properly continued.

When wool, except in woollen manufactures, was prohibited exportation from England, the French, and other neighbouring countries got it from Ireland; and this was soon seen, and its disadvantages; and laws were enacted against it.

In 1703, the woollen manufactures began to flourish again in England: a treaty was soon after made with Portugal; very advantageous

vantageous to them; and there was the appearance of their again making great progress. The French drooped in this article, for some time after they were deprived of our wool; but they found the way afterwards to rival us, with what they produced at home, or got from elsewhere; and the manufacturers with us saw that there was no way but integrity in their dealings, and a care of the trade, that could give them the preference.

These great articles of the trader's character, were not found: integrity was wanting in some, and knowledge or attention in others, and, for several succeeding years, things in this respect went worse and worse: the neglect of those most concerned let France get our wool again in great quantity, and our own manufacturers drooped in proportion: for this has been found at all times, that altho' the French can carry on their traffick in this article without us, yet they always succeed best when they have most from us; and we droop in proportion.

To close this important consideration, we must observe, that on two things depend the flourishing state of the British woollen manufacture: on the care of the husbandman in the proper management of his sheep and their produce; and on the preventing its exportation when we have it in the proper condition. We have laid this short history of the rise and progress of the woollen manufacture before the husbandman, to spirit him up in this great national concern; and to shew him that they are idle declaimers who tell him England always must be the country for the best or largest quantities of wool; that he may know how much it is necessary to exert himself in a concern on which the welfare of his country, and his own advantage, so greatly depend.

ART. IV. *How to order an Orchard that it shall never miss bearing.*

A Certain person writes, that he has seen several orchards that have been blown as white as a sheet, but when the blossoms have been gone, there hath been no appearance of fruit; therefore (says he) follow these directions, and your trees shall not fail to be extraordinary well hung; for I can assure you of my own knowledge, and the experience of several others, that when most orchards have miscarried, the trees could not stand under their burden, in an orchard managed in the following manner. If you live near any healthy ground, then in summer dry three or four hundreds of turf: But if you

are not near any heathy ground, then take three or four good trusses of straw, fern, or such-like, not too wet nor too dry, and reserve them for use. When you perceive there is an easterly-wind, or a north-easterly red wind, which was ever accounted a blighting-wind; observe that side of the orchard the wind blows on, lay a good armful of it in three or four places according to the bigness of your orchard, and light them with some dry sticks; then add more of such fuel for making smoak and smother, and the wind will drive the smoak through the whole orchard. Continue this till the wind shifts from the easterly quarter, and it will preserve the trees & fruit from blights, and all manner of flies and catter-pillars, which those sort of blighting winds usually bring along with them. When you find the wind changed to west, north-west, south, or south-west, you may forbear making any smoak, for those winds never hurt. Thus, if straw, furze, or fern, is burnt under trees in a dangerous blighting season, it will prevent the damage caused by the frost, and kill insects; especially if some brimstone be thrown into the fire while it is burning under the tree. This method, I dare answer for it, is much more efficacious, than only to burn straw or furze without brimstone; for it is well known, nothing is more destructive to insects than the smoak of sulphur. By observing this practice, you shall find, your orchard will not miscarry once in ten years; but on the contrary, your trees will be furnished with the best of fruit, when most other orchards fail.

ART. V. *The Art of good Husbandry, or Improvement of Time: Being a sure Way to get and keep Money.*

[Written in the Year 1675.]

S I R,

IN compliance to your late requests, obliging me to write to you, as soon as I came to London, I have sent to you the result of a few serious minutes concerning the great *Decay of Trade, and Want of Money*; which is now the general cry of all people both in city and country; the grounds and reasons of which many have attempted to find out, by curious inquiries into the several Laws and Statutes made for the promoting of trade, supposing the non-execution of those laws to be the occasion of it. To this end large discourses have been made concerning the decay of trade; several proposals offered by ingenious

ingenious persons for the restoration of it; and the great advantages that would ensue thereupon; with the many damages destructive to trade in general, that arise from the inquiries into the Wool-Trade, alledging the exportation of wool, the importation of foreign manufactures, and the permission of foreigners to work here, to be the chief cause of that Decay of Trade, and Want of Money; which every person complains of.

Now, though the grounds and reasons before-mentioned are guarded with so many probabilities, and seeming rational demonstrations, that every understanding person will be ready, at the first view, to hold up his finger and give his assent to them; yet upon critical inspection, or more curious survey, we shall find them to be only circumstantial.

There is something more material which is near us, that we overlook by looking so far off; that is, the little value or price we set upon that inestimable jewel, Time, which most people slight, like the cock in the fable, if they cannot make use of it, to satisfy their lascivious appetites. *It is the industrious hand that enricheth the land, and not contriving the pate.* The wasps and hornets, by their rapine, bring to their nests more honey at once, than the industrious bees can at many times; and yet, for all this, they usually die for want in the winter; whilst the industrious bees, by continual labour and improvement of time, gather sufficient to serve themselves in the winter, and can afford their masters a liberal share out of their plentiful stock.

I shall first begin with the *inferior rank of people*, for those are the persons most concerned in this general complaint and shew them, how they may remedy what they complain of.

First, Let them be diligent and industrious in their several trades and callings.

Secondly, Let them avoid all such idle societies; that squander away a great deal of time at a cheap rate.

I shall instance in those sober and civil conventions, as at Coffee-houses, and Clubs, where little money is pretended to be spent, but a great deal of precious time lost, which the person never thinks of; but measures his expences by what goes out of his pocket; nor considers what he might put in by his labour, and what he might have saved, being employed in his shop. As for example:

A Mechanic Tradesman, it may be, goes to the Coffee-house or Ale-house in the morning, to drink his morning's draught, where he spends two pence, and, in smoking and

talking,

talking, consumes at least an hour: In the evening, about six o'clock, he goes to his two-penny club, and there stays for his two-pence till nine or ten; here is four-pence spent, and four hours at least lost, which, in most mechanic trades, cannot be reckoned less than a shilling; and if he keep servants, they may lose him near as much by idling, or spoiling his goods, which his presence might have prevented. So that, upon these considerations, for this his supposed groat, (a day's expence) he cannot reckon less than seven groats; which comes to fourteen shillings a week (Sundays excepted) which is thirty-six pounds ten shillings a year. A great deal of money in a poor tradesman's pocket!

Now the same may be applied to the higher trades and professions, whose loss of time is according to the degree, or spheres, they move in; and yet this is the least thought of. We are apt to favour and excuse ourselves, and impute a general calamity to things afar off, when we ourselves are the occasion of it at home.

It will be necessary, before I proceed to take notice of one objection, which seems to be most material, viz. That some men's business lies abroad, and cannot be so well managed at home, and that these meetings or societies are advantageous to them. At first, Merchants, by these Clubs or Meetings, have intelligence of ships going out, and coming in; and also of the rates and prices of commodities, and meet with customers by accident; which possibly might never make inquiry at their houses or warehouses. The like excuses all men of business and trade pretend.

To this I answer:—That indulging this custom hath made it seemingly necessary; but yet there is no absolute necessity for it; for the Exchange is appointed for the Merchant's intelligence, and his warehouse is his shop. And, to other tradesmen, their shops are their markets; to which, if they would be reserved, they might better themselves, and improve that time, they spend in Taverns and Coffee-houses, to a greater advantage: For, by these idle meetings, they lose not only what they spend, but what might be improved by the overseeing their goods, and examining their accounts, which, they now wholly trust to the fidelity of a servant or servants; who, being led by their masters' examples, grow idle and extravagant; and knowing their masters sure, make sure for themselves; furnishing themselves for their debauched assignations, they now plot and invent the means and ways for their extravagant meetings, which are the occasion of the ruin of many masters, and hopeful

ful servants; all which might be prevented by the diligent eye of the master; the want of which is the occasion of all the debauchery, poverty, and misery, which every place cries out of. From this negligence and loss of time, come many more inconveniencies, that heap on poverty, and entail it upon themselves and generations.

From these Clubs and Societies (how civil soever they appear to be) it is impossible in any such meeting, but some of them are given to vice; and it is probable, the greatest part: By this means are introduced gaming, foolish wagers, wenching, swearing, and other debaucheries. And usually at parting, or breaking up of these Clubs, they divide themselves according to their several inclinations or dispositions; some go to a tavern, some to a convenient place for gaming, others to a bawdy-house, by which means, the family is neglected, and not governed as it ought to be; the wife (though possibly a very virtuous and careful housewife) exasperated by the extravagancies of her husband, and foreseeing poverty and want attending her, and her children, grows desperate; and, it may be, yields to some temptations that are too common in these days; by which means, oftentimes an estate, that was gathered by grains, is scattered abroad by bushels.

The servants too, by these examples, fall into the same vices, and many times ruin both themselves and their friends, who have strained their estates to the utmost, to get them into those places, and engaged their friends for their fidelity, hoping that their industry might afterwards make them some retaliation; all which is frustrated, and they become vagrants and extravagants, by which means city and country are filled with so many idle persons, that live only by spoil and rapine; or like droans, feeding upon others labours; the greatest part of their business being to undo what others do, and to devise or contrive ways to cozen, supplant, or cheat each other; accounting it as lawful to get twenty shillings by cheating or playing, as by the most honest and industrious labour; so that, by this means, our commodities, which might be employed by industrious manufacturers, lie waste; and no wonder that we complain for want of trade, when the hands, that should be employed about it, are idle; for if a strict enquiry were made into the city and suburbs, of all the persons that are capable of work, either in the wool or fishing-trade, as men, women, and children, from seven years upwards, that are now altogether idle, or not employed to any purpose, in trade, there would not be found less than an hundred and fifty thousand, that live like droans, feeding upon the stock of others' labours.

Now,

Now, it is our own Negligence and Idleness that brings Poverty upon us; for, if these idle persons were employed, we need not cry out of the exportation of wool, neither would industrious foreigners have that encouragement to work here, if we would mind it ourselves; but, if we will not improve our manufactures, we cannot blame others for doing of it.

Now it will be supposed, that by those laws for setting idle people to work, punishing vagrants, and rectifying disorders in public-houses, all this might be prevented: This commonly is our last shift, and thus are we apt to excuse ourselves, and lay the burden of our own faults upon the shoulders of our governors; we may be very sensible, that we have as good laws as in any place in the world; we live under such a King, that, for prudence and wisdom, no empire or kingdom can make comparison with us; nor can laws be better executed than in this kingdom: But it is impossible that the eye of Magistracy can see into every corner; every single person hath a Corporation within himself; every family is a petty principality, of which the master or mistress is vicegerent; 'it lies upon every private person to put in execution those laws of nature within himself, that will inform him, what he ought to do, and what he ought not to do. Every Governor or Governess of a family should take care, by their good examples, to instruct their families; and severely to punish such disorders as shall be committed in their house or houses, as far as their power doth extend; the remainder they may leave to the Magistrates, who will not be wanting on their parts.

Now since every one is guilty, let us endeavour to mend, and no longer complain of want, since it is in our power to enrich ourselves and our country. *The industrious hand needs not make a leg to fortune for wealth; nor the honest heart bend his knee to flattery, to gain him a reputation.*

T. R.

ART. VI. *Hints for curing Confined Bad Air in Mines.*

[In a Letter to the Secretary of the Bath Agriculture Society.]

S I R,

EVERY attempt to save expence, in the working of mines, seeming to come within the pale of your establishment, and having lately turned my attention to that subject, in consequence of being engaged in a lead mine, and of having been driven to the necessity and expence of sinking some shafts for conveying

conveying air to the miners employed in driving the adit-end, and working on the course of the lode, I flatter myself that I shall be able to save that expence to myself in future; and therefore take the liberty of presenting to your Society, for the benefit of the kingdom and public at large, the following

Hints for a simple and expenceless method of curing and restoring confined bad air in mines, viz. such as is saturated with Phlogiston, in consequence of the consumption of it by the candles continually burning like vestal lamps, and by the breath and effluvia of the labourers employed in driving or working the Adit-End [Cornish] Sough or Level [in the North] or Gallerie [in foreign mines] and by a total want of circulation, until at last it becomes so intolerable, that neither candles can burn nor men longer breathe in it.

THE principal use of adits being to unwater mines, and lay them dry, there is of course a constant supply of water in the bottom of the adit; and the more water flows into the adit, the better will the air be, the longer will it continue good, and the longer and better will the labourers be able to continue at work; but after all, from a mere want of circulation, the air is at last rendered so impure, so unwholsome, and so bad, that the work must be either deserted, or left idle for a certain time, for the air to cool and restore itself, or, and at last after driving a little farther, a shaft must be sunk upon the adit-end to answer that purpose, at perhaps a very considerable expence.

To save which expence, and to restore such air to a perfectly cool respirable pure state, as often as necessary, (instead of the many ingenious methods of air-pipes, fallering, air-bellows, pipes, fires, &c. I propose to substitute the following:—

Take a common garden hand-pump, such as is used for watering fruit trees, which may be purchased at any tin-man's for about twelve shillings and six-pence, and when the air becomes foul or disagreeable, sink a little pit of about eighteen inches deep, to stand the pump in, at about two or three fathoms distant from the adit-end, and let the miner work his pump from thence, towards and against the roof and the wall at the adit-end, and the side-walls too if he chooses, for a minute or two, and if necessary, let him turn himself and the pump, standing in the same pit, and work it backwards, towards the mouth or entrance of the adit in like manner; dashing, separating, and dividing the water into drops, like rain, as much and forcibly as possible, which in a minute or two will, I doubt not, most effectually cool, restore, and purify the air, and render it again perfectly

fectly wholesome and respirable, and enable the workmen to go on ever so far in driving the end with pleasure, and working the mine without any air shaft, or other similar aid.

Though this may seem to many a very desirable addition to the mining desiderata, yet I am well aware the practical miner will exclaim and insist on the necessity of shafts, for the purpose of bringing up his ore, deads, &c. from the bottom of the mine to the surface or grafs; and if I could not overcome that difficulty, and convince him of being able to answer effectually every purpose of that sort, without sinking a single shaft in 500 or 1000 fathoms driving, I should think this first part of my plan very defective and incomplete. But having all that in a perfect embryo, I beg leave to transmit this sketch first, which, if approved, will in due time be followed (instead of bringing forth twins) by a plan of the method I intend to adopt, for that and other purposes; which I flatter myself will, in working many mines, prove of great utility, in a variety of instances besides those above-mentioned.

Exeter, May 25, 1780.

C. G.

ARR. VII. *The way of making MUM, with some remarks on that Liquor.*

TO make a vessel of sixty-three gallons, the water must be first boiled to the consumption of a third part; let it then be brewed, according to art, with seven bushels of wheat-malt, one bushel of oat-malt, and one bushel of ground beans; and, when it is tunned, let not the hogshhead be too much filled at first; when it begins to work, put to it of the inner rind of the fir three pounds, of the tops of fir and birch, of each one pound; of *Carduus Benedictus* dried, three handfuls; flowers of *Rosa Solis*, two handfuls; of burnet, betony, marjoram, avens, penny-royal, flowers of elder, wild thyme, of each one handful and an half; seeds of cardamum bruised, three ounces; bay-berries bruised one ounce; put the seeds into the vessel: when the liquor hath wrought a while with the herbs, and after they are added, let the liquor work over the vessel as little as may be; fill it up at last, and, when it is stopped, put into the the hogshhead ten new-laid eggs, the shells not cracked or broken; stop all close, and drink it at two years old; if carried by water it is better. Dr. *Aegidius Hoffman* added water-crelles, brooklime, and wild parsley, of each six handfuls, with six handfuls of horse-radish rasped, in every hogshhead; it was observed that the

the horse-radish made the mum drink more quick than that which had none.

By the composition of mum, we may guess at the qualities and properties of it; you find great quantities of the rind and tops of fir in it; therefore if the mum-makers at London are so careful and honest, as to prepare this liquor, after the Brunfwick fashion, which is the genuine and original way, it cannot but be very powerful against the breeding of stones, and against all scorbutic distempers. When the Swedes carried on a war against the Muscovites, the scurvy did so domineer among them, that their army did languish and moulder away to nothing, till, once incamping near a number of fir-trees, they began to boil the tops of them in their drink, which recovered the army, even to a miracle; from whence the Swedes call the fir, the *Scorbutic tree*, to this very day. Our most renowned Dr. Walter Needham has observed the great success of these tops of fir in the scurvy, as Mr. Ray informs us; which is no great wonder, if we consider the balsam of turpentine (with which this tree abounds) which proves so effectual in preserving even dead bodies themselves from putrefaction and corruption. Mr. Boyle (the ornament and glory of our English nation) used to affirm, that the oil of turpentine preserves bodies from putrefaction much better than the spirit of wine. The fir, being a principal ingredient of this liquor, is so celebrated by some modern writers, that it alone may be sufficient to advance the mum trade amongst us. Simon Pauli (a learned Dane) tells us the great exploits of the tops of this tree in freeing a great man of Germany from an inveterate scurvy; every physician will inform you, how proper they are against the breeding of gravel and stones; but then we must be so exact, as to pull these tops in their proper season, when they abound most with turpentine and balsamic parts, and then they may make the mum a proper liquor in Gonorrhœas; besides, the eggs may improve its faculty that way; yet I will not conceal what, I think, the learned Dr. Marret affirms, in his observation upon wines, that those liquors, into which the shavings of fir are put, may be apt to create pains in the head; but still it is to be confessed, that the fir cannot but contribute much to the vigour and preservation of the drink.

By the variety of its malt, and by the ground beans, we may conclude, that mum is a very hearty and strengthening liquor; some drink it much, because it has no hops, which, they fancy, do spoil our English ales and beers, ushering in infections; nay, plagues amongst us. Tho, Bartholine exclaims so

fiercely against hops, that he advises us to mix any thing with our drink, rather than them; he recommends sage, tamarisks, tops of pine, or fir, instead of hops, the daily use of which in our English liquors is said to have been one cause, why the stone is grown such a common disease among Englishmen; yet Captain Graunt, in his curious observations upon the bills of mortality, observes, that fewer are afflicted with the stone in this present age, than there were in the age before, though far more hops have been used in London of late than ever.

As for eggs in the composition of mum, they may contribute much to prevent its growing sour, their shells sweetening vinegar, and destroying acids; for which reason they may be proper in restoring some decayed liquors, if put whole into the vessel. Dr. Stubbs, in some curious observations made in his voyage to Jamaica, assures us, that eggs, put whole into the vessel, will preserve many drinks, even to admiration, in long voyages; the shells and whites will be devoured and lost, but the yolks left untouched.

Dr. Willis prescribes mum in several Chronical distempers, as scurvies, dropries, and some sort of consumptions. The Germans, especially the inhabitants of Saxony, have so great a veneration for this liquor, as to fancy their bodies can never decay or pine away, as long as they are lined and embalmed with so powerful a preserver; and indeed, if we consider the frame and complexions of the Germans in general, they may appear to be living mummies. But to conclude all in a few words, if this drink, called mum, be exactly made according to the foregoing instructions, it must needs be a most excellent alterative medicine, the ingredients of it being very rare and choice simples, there being scarce any one disease in nature against which some of them are not prevalent, as betony, marjoram, thyme, in diseases of the head. Birch, burnet, water-crelles, brook-lime, horse-radish, in the most inveterate scurvies, gravels, coughs, consumptions, and all obstructions. Avens and Cardamom-seeds, for cold weak stomachs. *Carduus Benedictus*, and elder-flowers, in intermitting fevers. Bay-berries and penny-royal, in distempers attributed to the womb. But it is to be feared, that several of our Londoners are not so honest and curious, as to prepare their mum faithfully and truly; if they do, they are so happy as to furnish and stock their country with one of the most useful liquors under the sun, it being so proper and effectual in several lingering distempers, where there is a deprivation and weakness of the blood and bowels.

ART. VIII. *Ancient Customs of England.*

IT was sometimes in the English laws, that the people and the laws were in reputation; and then were the wisest of the people worship-worthy, each in his degree, *Lorle* and *Chorle*, *Theyn* and *Undertheyn*. And if a *Chorle* so thrived, that he had full five hides of his own land, a church and a kitchen, a bell-house and a gate, a seat and several offices in the King's hall; then was he henceforth the *Theyn's* right-worthy. And if a *Theyn* so thrived, that he served the King, and on his message, or journey, rode in his household; if then he had a *Theyn* that him followed, who to the King's expedition five hide had, and in the King's palace his Lord served, and therewith his errand had gone to the King, he might, afterward, with his fore-oath his Lord's part play at any need. And if a *Theyn* so thrived, that he became an Earl, then was he right-forth an Earl right-worthy. And if a merchant so thrived, that he passed thrice over the wide sea of his own craft, he was thenceforth the *Theyn's* right worthy. And if a scholar so thrived through learning, that he had a degree, and served *Christ*, he was thenceforth of dignity and peace so much worthy as thereto belonged, unless he forfeited so, that the use of his dignity might be taken from him.

These ruins of antiquity make shew of a perpetuity of nobility, even from the beginning of this island; but times are changed, and we in them also. For King Edward the Confessor, last of the Saxon blood, coming out of Normandy, bringing in then the title of Baron, the Thane from that time began to grow out of use; so at this day men remember not so much as the names of them. And, in process of time, the name of Baronage began to be both in dignity and power so magnificent above the rest; as that, in the name of the Baronage of England, all the nobility of the land seemed to be comprehended. As for Dukes, they were (as it were) fetched from long exile, and again renewed by King Edward the Third. And Marquisses and Viscounts were altogether brought in by King Richard the Second, and King Henry the Sixth.

ART. IX. *How to forward the Growth of Fruit-trees, cause their Blossoms to knit, and their Fruit to stand.*

THIS excellent piece of husbandry is best performed in the spring season, and best of all at the beginning of the trees blossoming. Take short, rotten horse-dung, or any other dung,

B a 2

and

and spread it six inches at least in thickness just over the roots of either standard or wall fruit-trees, and as wide as you think fit, without digging or any ways breaking the surface of the earth. In this posture, the dung lies in a right condition to receive todge, and to have its saline and sulphureous quality washed into the roots of the trees by rains; which will surely force on a swift growth of the trees and fruit, especially if this sort of application be made use of every second year. Thus the blossoms and the fruit will be enabled to withstand in a great degree, the force of wind and weather; and the roots defended from the damage caused by long drought. This improvement may also be further increased, if pigeons, rabbits, or hen dung be thinly laid over the stable rotten dung. For preventing the harbouring and breeding worms, pismires, or other ground insects in the dung, which generally happens to be the case, scatter over it some foot mixed with ashes, which will likewise still further assist the growth of the trees and fruit. If your standard fruit-tree is a young one, you may employ four or more furzen faggots to forward its growth, by laying two at the root and others on the top, which being bound to their place, will throughout the summer keep the roots moist and cool, and in the most growing condition, for shade and moisture very much tend to the tree's thriving. It is also to be observed on this account, that such an application of dung ought not to be put on before the spring, lest it should force the bloom out too soon to its damage; nor should such a dung-dressing be laid too near the roots of gummy fruit-trees, because dung does not agree with these as with the apple & pear-tree, nor should the dung-dressing be the same the second year as the first; because the ground as well as trees and roots, agrees best with variety of dressings, as is fully evident from any ploughed ground, and the corn that grows in it. For a farmer may dress his land with only one sort of dung or manure till it produces hardly any corn at all. Therefore at one time dung, at another time ashes mixed with foot, another time horse litter, or fern, are very proper dressings for fruit-trees, to be laid over their roots: for if dung especially was dug in as a dressing to them, the consequence would be a canker in the roots and the destruction of the fruit-trees.

ART. X. *Other Ways to forward the growth of Fruit-Trees.*

THE *first Way*—Has been by means of a sheep-fold, made with moveable hurdles, which incloses or pens in the sheep about the trunks of the trees, after they have been
first

first bound about with hay to prevent the sheep from rubbing against them. This method of folding must be repeated for two or three nights successively, and then sheep's dung and stale has had the desired effect. A fruit-tree that was thus managed had not bore any fruit to perfection for several years before, but after this produced abundance of fruit.

Another Way—Has been practised by making holes down the roots of fruit-trees with an iron crow or mattock, and placing the hoofs of cows, or oxen, in these holes to stand with their open part to the weather; and as the rain from time to time falls in them, it putrifies and runs over and soaks to the tree's roots, and thus greatly fertilizes the tree.

A third Way—Is to water the roots of the trees now and then in the summer time, with some fertilizing liquor, such as black mudgel-hole water, or with a liquor that has been prepared by passing through a proper compost for this purpose.

ART. XI. *Modes of Agriculture recommended to the Gentlemen of Ireland.*

[From Mr. Young's Tour in Ireland.]

HAVING been repeatedly requested by gentlemen in all parts of the kingdom, to name such courses of crops as I thought would be advantageous; I very readily complied to the best of my judgment with the desire; and shall venture to recommend such modes of cultivation as I think, after viewing greatest part of the kingdom, will be found most advantageous.

Turnep Course [for dry and light Soils.]

1. Turnips,
2. Barley,
3. Clover,
4. Wheat,

Directions. Plough the field in October into flat lands; give the second ploughing the beginning of March; a third in April; a fourth in May; upon this spread the manure, whatever it may be, if any is designed for the crop; dung is the best. About Midsummer plough for the last time. You must be attentive in all these ploughings thoroughly to extirpate all root weeds, particularly couch (*tritium repens*) and water grass; the former is the white root, which is under ground, the latter, which knots on the surface, and is, if possible, more mischievous than the former. Children, with baskets, should follow the plough in every furrow to pick it all up and burn it, and as fast as it is done sow and harrow in the turnip seed. The best way of sowing is to provide a trough, from twelve to sixteen

teen feet long, three inches wide and four deep, made of slit deal half an inch thick, let it have partitions twelve inches asunder, and a bottom of pierced tin to every other division, the holes in the tin should be just large enough for a seed to fall through with ease, three of them to each tin; in the middle of the trough two circular handles of iron; the seed is to be put, a small quantity at a time, into the bottomed divisions, and a man taking the trough in his hands walks with a steady pace over the land, shaking it sideways as he goes: if he guides himself by the centers and furrows of the beds, he will be sure not to miss any land; cover the seed with a light pair of harrows. A pint and a half of seed the proper quantity for a planation acre; the large globular white Norfolk sort, which grows above ground, yields the greatest produce.

As soon as the crop comes up, watch them well to see if attacked by the fly, and if very large spaces are quite eaten up, instantly plough again, and sow and harrow as before. When the plant gets the third or rough leaf, they are safe from the fly; and as soon as they spread a diameter of three or four inches is the time to begin to hand hoe them, an operation so indispensably necessary, that to cultivate turnips without it, is much worse management than not to cultivate them at all. Procure hand-hoes from England eleven inches wide, and taking them into the field, make the men set out the turnips to the distance of from twelve to eighteen inches asunder, according to the richness of the soil; the richer the greater the distance, cutting up all weeds and turnips which grow within those spaces, and not leaving two or three plants together in knots. Make them do a piece of land perfectly well while you are with them, and leave it as a sample. They will be slow and awkward at first, but will improve quickly. Do not apprehend the expence; that will lessen as the men become handy. On no account permit them to do the work with their fingers, unless to separate two turneps close together, for they will then never understand the work, and the expence will always be great. Employ hands enough to finish the field in three weeks. As soon as they have done it, they are to begin again, and hoe a second time, to correct the deficiencies of the first; and for a few years, until the men become skilful in the business, attend in the same manner to remedy the omissions of the second. And if afterwards, when the turneps are closed, and exclude all hoeing, any weeds should rise and shew themselves above the crop, children and women should be sent in to pull them by hand.

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In order to feed the crop where they grow, which is an essential article, hurdles must be procured; as a part therefore of the system, plant two or three acres of the strait timber sally, in the same manner as for a twig garden, only the plants not quite so close, these at two years growth will make very good sheep hurdles; they should be 6 or 7 feet long and 3 feet high, the bottoms of the upright stakes sharpened, and projecting from the wattle work 6 inches, they are fixed down by means of stakes, one stake to each hurdle, and a band of year-old sally goes over the two end stakes of the hurdle, and the moveable stake they are fixed with: the hurdles are very easily made, but the best way would be to send over an Irish labourer to England, where he would become master of it in a couple of months.

Being thus provided with hurdles, and making some other shift till the sallies are grown, you must feed your crop (if you would apply them to the best advantage) with fat wethers, beginning the middle of November, or first week in December, and hurdling off a piece proportioned to the number of your sheep, let them live there, night and day; when they have nearly eaten the piece up, give them another, and so on while your crop lasts: when you come to have plenty of hurdles there should be a double row in order to let your lean sheep follow the fat ones, and eat up their leavings; by which means none will be lost. The great profit of this practice in Ireland is, being able to sell your fat sheep in the spring when mutton almost doubles its price. If you fat oxen with turnips, they must be given in sheds, well littered, and kept clean, and the beasts should have good hay. Take care never to attempt to fatten either beasts or wethers with them that are lean at putting them to turnips; the application is profitable only for animals that are not less than half fat.

Upon the crop being eaten there is a variation of conduct founded on circumstances not easy fully to describe, which is ploughing once, twice, or thrice for barley; the soil must be dry, loose, and friable for that grain; and, as clover is always to be sown on it, it must be fine; but if the first ploughing is hit in proper time and weather, the land will be in finer order on many soils than after successive ploughings. The farmer in his field must be the judge of this: suffice it to say, that the right moment to send the ploughs into a field is one of the most difficult points to be learned in tillage, and which no instructions can teach. It is practice alone that can do it. As to the time of sowing barley in Ireland, I should miss no season after the middle of February, if I had my land in order. Sow
three

three quarters of a barrel, or a barrel and a quarter of barley to the plantation acre, according to the richness of the land; if it had a moderate manuring for turneps, and fed with fat sheep, three quarters or a whole one would be sufficient, but if you doubt your land being in heart sow one and a quarter. Plough first, (whether once, twice or thrice) and then sow and cover with harrows of middling weight, finishing with a light harrow. When the barley is three inches high, sow not less than 20lb. of red clover to each plantation acre; if the seed is not very good, do not sow less than 25lb. and immediately run a light roller once over it; but take care that this is in a dry day, and when the earth does not stick at all to the roller. When the barley is cut, and carried from the field, feed the clover before winter, but not very bare, and do not let any cattle be on it in the winter. Early in the spring, before it shoots, pick up the stones clean off where you intend mowing it for hay, but if you feed it this is unnecessary. As to the application of the crop for hay or food it must be directed by the occasions of the farmer; I shall however remark, that it may be made exceedingly conducive to increase the number of hogs in Ireland, as it will singly support all quarter, half, and full grown pigs. If mown, it should be cut as soon as the field looks reddish from the blossoms: it will yield two full crops of hay.

Within the month of October let it be well ploughed, with an even regular furrow, and from half to three quarters of a barrel of wheat seed sown, according to the richness of the land, and harrowed well in. When this crop is reaped and cleared, the coarse ends, and you begin again for turnips as before.

This system is well adapted to sheep, as the clover fattens them in summer, and the turnips in winter.—Excellent as it is for dry soils, it is not adapted to wet ones.

[To be continued.]

ART. XII. *Remedy for a Horse's Cold caught at Grass.*

THIS disorder is not dangerous in itself, but by neglect may become so; a little care therefore will be necessary to remove it.—Take Liquorice root, half a pound; Coriander seeds, Carraway seeds, Sweet Fennel seeds, each two ounces; boil in two gallons of water to one, and give a pint every night and morning, a little warm, till he is well, which will seldom be more than a week or ten days.



T H E
FARMER'S MAGAZINE.

J U L Y, 1780.

A DISSERTATION *on the Progress and present State of*
AGRICULTURE. [Continued.]

F R A N C E.

THERE is no country in the world more happily situated for a vigorous cultivation of the earth, than France. The climate is mild and temperate, the soil scarce any where barren—and the situation between two seas gives her a million of advantages in the articles of commerce, which are an immediate assistance to husbandry. It must however be confessed, that this art has not met with that attention in France, the real importance of it deserves.

Wherever great numbers of people have existed, we may take it for granted, Agriculture has been followed; for without it they could not live. It is one of the most melancholy reflections humanity can suggest, that the records of mankind are filled with miserable butcheries, while the cultivation of the earth is scarce ever mentioned. A few pages would give us a complete compilation of the history of Agriculture, which feeds mankind—millions of volumes are filled with the art of war, which destroys them. Such are the cruel prejudices of this world!

This blind infatuation is to be regretted in the French writings, equally with those of other countries, until the present age. Very little concerning husbandry is to be met with in any, before the reign of that great and good prince, Henry the fourth.

VOL. V.

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He,

He, and his minister Sully, understood and loved Agriculture; and were the most remarkable men in this, as well as other respects, in modern times. The King's ideas of national improvements were of a larger extent than the minister's, comprehending the encouragement of manufactures; but the latter, with more justness, was of another opinion, and condemned manufactures, until that first great manufacture of the soil was complete; accordingly, he encouraged Agriculture all in his power, and by greatly adding to the ease and comfort of the lower people, made them fond of that profession which rendered them happy: Nor was his master backward in promoting the minister's conduct; and Agriculture, so attended to, made large strides, and flourished more in France than in England, or any neighbouring kingdom: And herein, in a good measure, was laid the foundation of the future power of France.

Agriculture, under their encouragement, flourished—the lands, which had been so long uncultivated, were covered with corn—the peasants were affluent and happy—the general face of the kingdom was changed—it gave manifest signs of speedily becoming most flourishing and formidable.—Cabals, factions, confusion, civil wars, and every horrid contrast to this happy period, then ensued: It may easily be supposed, that the voice of husbandry was heard no more; indeed, we know nothing of the French Agriculture during that period, and in all probability there was nothing in it worthy to be known. In those times of public confusion, it infallibly sinks to a wretched state of insignificance. So great a power have a *few* of ruining the *many*! The number of men engaged in civil war is always vastly short of the number who follow their common occupations—the proportion will not be found to be one in an hundred; and yet what misery and wretchedness does that one man bring upon his hundred neighbours!

The settlement of the kingdom by Lewis XIV. and the encouragement of arts, succeeded. What miserable inconsistencies is this world full of? The same people that gave the glorious title of *Great* to Henry, bestowed it likewise on Lewis! —What did I say? *The same people*. No: The PEOPLE furnished the first—the *Courtiers* the latter. What a difference! Immortal fame ought ever to attend the one—contempt the other. But I am not here to characterise these two princes; I would speak only of Agriculture.

Colbert soon became the chief minister of Lewis. This man had certainly great ideas; and withal a spirit of improvement, which blazed out with wonderful lustre. He apprehended that

that a vast trade, and numerous manufactures, would enrich the kingdom so prodigiously, as to give her unfathomable resources. He accordingly rejected the plan of Sully, and *began* with establishing a vast variety of manufactures at a prodigious expence: neither did he spare any cost to render France the first trading power in the universe. But with design to enable his manufacturers to sell cheaper than those of other countries, he thought it requisite to have bread at as low a price as possible, from that *apparently* just reasoning, that the cheaper a manufacturer lives, the cheaper the manufacture could be afforded. To effect his design, he prohibited all exportation of corn, from the kingdom, and even greatly cramped the transportation of it from one province to another. These measures were intended to give a plenty at home. Not content with this, he, in times of distress, (and even before they came) greatly loaded the husbandmen with impositions and taxes, that the manufacturer's share of those burthens might be the less.

All this management formed a system of policy, infinitely more wretched than one could believe would ever have entered the head of a man of genius, who had the example of Sully before him. Every measure was attended with an effect directly contrary to that he expected. Instead of the price of the necessities of life *falling*, they *rose*, and became extremely fluctuating and various; corn was sometimes a drug, at others, immensely dear, and famine itself appeared almost periodically. These circumstances ruined the Agriculture of France, without being of any service to her manufactures; for it is a fact, universally known, that workmen in no country will labour for more than subsistence; and if that subsistence can be earned, in three days, in sufficiency for a week, only three days will they labour. It was very apparent in France, after an excessively plentiful harvest, that a general idleness ensued amongst their manufacturing hands—on the contrary, in some years, the most industrious diligence could not keep them from starving.

The Agriculture of the kingdom, wanting encouragement so greatly, was attended with those effects, which the Duke of Sully, had he lived in Colbert's time, would have predicted. Those resources, which the latter minister depended so much upon, proved in a good measure delusive. And France, while so busily employed in the manufacture of trinkets, gewgaws, and *superfluities* of all kinds, became dependent on her neighbours for *bread*; and, during the course of many years, expended almost as much for corn, as she received for manu-

factures. So great was her distress, in this respect, that Lewis XIV. more than once recruited his armies, by providing *them* with bread, and taking no care of supplying the *people in general*.

Under the duke Regent, husbandry received that encouragement which peace always yields her. The politicks of the state did not change, but the continuance of the peace made some amends for the want of particular encouragement. From his death, to the end of the war of 1741, Agriculture continued on the old footing on which Colbert had left it; the consequences nearly the same. The resources of the kingdom were trivial; the number of her people continued to *decrease*, even while her commerce was on the *increase*; and that war was actually concluded by famine, the French government being *obliged* to agree to a peace in the midst of Marshal Saxe's successes in Flanders, because their people *starved*.

From that period, it must be confessed, that the French began to see a little clearer into the vast importance of Agriculture. The cultivation of that immense kingdom they inhabited, then began to come a little in competition with manufactures. Still, however, no memorable laws were enacted for its encouragement—but the dawning of a just spirit was seen among individuals, and the ministry applauded them.

Actuated with just ideas, and animated with becoming spirit, Agriculture was no longer neglected. We shall here insert an extract from a very sensible English author, on the advances lately made by the French.—The writer speaks from exceeding good intelligence; and his remarks are extremely pertinent and just.

“France gave a wise attention to husbandry, even during the hurry and distresses of her last war. Some prize questions in rural œconomics were *then* proposed annually, particularly by the two academies of Lyons, and Bourdeaux. Many alterations, for the better, were made by the society for improving Agriculture in Britany.

“Since the conclusion of the peace, matters have been carried on with great vigour. The university of Amiens has made various proposals to the public, for the advancement of husbandry; whilst the Marquis de Tourbilli (a writer who goes chiefly on experience) has the principal direction of a *georgical* society, established lately at Tours.

“That at Rouen likewise deserves notice: nor have the king
and

and his ministers thought it unworthy of their attention. The archbishop † of the diocese is one of the members.

“ In the year 1761, there were *thirteen* societies existing in France established by royal approbation, for the promoting of Agriculture, and these *thirteen* societies had *nineteen* co-operating societies belonging to them, whenever it happened that a district was too large to be effectually taken care of by one society.—

“ In the year 1756, his most Christian Majesty issued out an edict, by which he exempted from land-tax, (that is to say, in fields newly broken up) for the space of twenty years, all cultivators of madder, in drained marshes, and other waste neglected grounds. [But at the same time, let it be remembered, that public encouragement in France was given to the draining of fens and bogs, first in the year 1607, and then in 1641.]

“ As a proof that something has been done in culture of madder, the board of Agriculture, held at Beauvais, made it plain in 1762, to all persons concerned in dying, that madder raised in that district, and (contrary to common custom) used when the roots are fresh gathered, gave a finer tincture than the Zealand madder, and went farther, in a proportion of eight to five.

“ August the 16th, 1762, it was also ordered in council, that no tax, for the space of twenty years, should be levied upon grounds newly broken up; provided the said grounds had lain twenty years in an uncultivated state.

“ Many other encouragements have been since given to the cultivators of lands: And, if I mistake not, all packets and letters of correspondence, to and from most of these societies lately established, are exempted from the payment of postage.”

But the greatest encouragement to Agriculture, which the French in these latter times have experienced, is the allowance of a FREE EXPORTATION OF CORN: which was granted by a perpetual and irrevocable edict in the year 1764. This measure was founded on the truest policy, and the wisest attention to the conduct of the English. That people became *great* from their exportation of corn; but such exportation was chiefly owing to a bounty granted by parliament—and this is the last point of encouragement which France (in that re-

* This humane and considerate prelate (M. de la Rochefoucault) destroyed, when he first came to his diocese, a large warren of hares and rabbits, which he found on his demesnes, merely because they did great damage to the neighbouring husbandmen.

spect) at present wants, to render her more powerful than the acquisition of conquered provinces will ever effect.

The number of taxes and impositions, under which the French farmer groans, will most certainly be a hindrance to a complete cultivation, while they continue; and if the French court should see their real interest, they will effect a change in this part of their revenue: but if they should not be so nobly extensive in their views, much would be effected by a large bounty on the exportation of corn—indeed such a bounty *might* be so managed, as in a great measure to make amends for the want of better laws.

It is incredible what an effect such a measure would be attended with, in a kingdom of such a great extent as France—so finely situated—so fertile in the production of corn—and so advantageously watered by navigable rivers. French Agriculture would speedily carry a new face; for nothing is so highly encouraging of a vigorous cultivation, as a sure and speedy sale of the produce of the earth. If we cast our eyes over the several kingdoms and states of Europe, we shall at one view perceive, that Agriculture flourishes only in those where exportation is allowed: and what is remarkable, the price of corn is uniformly lower in such countries, than in others, where the exportation is prohibited; and famine never visits a people that are allowed to sell abroad their superfluous corn. To some politicians this appears paradoxical; but no truth in mathematics is more susceptible of demonstration.

There has lately existed, and at present exists, a spirit of improvement in matters of Agriculture, amongst individuals in France, which bears a countenance of great utility. At the head of these true patriots stands the Marquis de Tourbilli, the author of the *Memoire sur la Defrichemens*. This nobleman inherited a considerable extent of country in Anjou; much the greatest part of which was reputed barren: consisting of unbounded heaths, extensive marshes, a variety of wild uncultivated country; vast quantities of which did not so much as maintain a flock of sheep; and the few inhabitants, in a state of beggary and idleness. The Marquis, instigated by a noble spirit of improvement, determined at least to attempt a change in his estate, considerable only for its extent. He broke up a small piece of land adjoining to his habitation, in a manner peculiar to himself in France, and cultivated it very judiciously; continuing yearly the same work, until his house was surrounded by a considerable and well-cultivated farm; by degrees this beneficial work proceeded further; numerous farm-

farm-houses, with all the necessary conveniencies, were built, and tracts of improved land thrown to them—vast numbers of inclosures were struck, and plantations made—his marshes were drained—his vast meadows reduced to a fine state of profit—his numerous woods brought into regular cuttings—roads made at a great expence, even through mountains themselves—quarries of stone discovered, and bridges thrown over a river, and several rivulets—new vineyards planted—the breed of all kinds of cattle improved—several manufactories established—and, to conclude all, the number of souls on his domaine doubled in twenty yearstime. A series of conduct of vast and important consequence to himself, and his country.

The celebrated M. du Hamel, and his numerous correspondents on matters of husbandry, among whom Mons. de Chateaufvieux may be considered as the principal, have shown a due attention to most branches of rural œconomics: and displayed in their valuable writings, a practical knowledge of Agriculture, which daily increases and becomes more general: M. du Hamel, particularly in his pieces concerning *trees and planting*,—*granaries*,—and *experimental Agriculture*, has bestowed on the public the valuable effects of his *practice* and his *study*.

A distinction should however be made between those worthy patriots, who labour to perfect the common practice—and those who are chiefly busied in introducing new ones. Until Agriculture is arrived at a much higher perfection than it is at present in France, the principal and most important object is to improve and advance to perfection, the methods of husbandry of which the common people already have an idea; because it is infinitely more probable that they will follow such examples, than others which proceed on principles of which they are ignorant: Thus the Marquis de Tourbilli's improvements, are all of a nature extremely plain and common, and the benefit resulting from them generally known and understood: The old husbandmen, or their landlords themselves, see at once the propriety of draining a marsh, or making that land produce corn, which never produced any before; but the same people will never be brought to allow, that sowing corn in rows instead of the common method, will answer better: A million of prejudices are here to be combated; and when got the better of, the effect will not be an hundredth part so beneficial, as the business of breaking up uncultivated heaths, draining wet lands, and, in short, all the works of the immortal Tourbilli.

A company

A Company of Patriots, particularly of Bourdeaux, distinguished by their zeal, and the enlightened manner in which they followed the system of true œconomy, lately engaged among themselves, to try by all possible means to direct the views of their countrymen to Agriculture, that essential but heretofore neglected art. The principal object of their immediate attention was the vast tract of uncultivated land, containing about two hundred and forty thousand acres, which made a part of the domains of the marquisate of Certes, situated in the division of Bourdeaux. They purchased part of these lands of the proprietor, by an absolute contract of sale, with such clauses as must contribute efficaciously to the benefit of the new possessors, the utility of some provinces, and, by an happy train of consequences, to the common good of the state.

That which most favoured the project of these worthy citizens was the entering into possession of the power of erecting the twentieth part of these waste lands, into fiefs, or airier fiefs; and into the right of establishing, agreeable to the necessity of the case, manufactures, mills, presses, dove-houses, fairs, markets, &c. and to enjoy a general exemption from all fines of alienation and sale, in the first changes to which the portions of property might be subject. Besides these circumstances, the king approved and confirmed the sale of the lands by an arret of his council of state, given the 1st of June 1762. By this arret it was ordained, that the cultivators of these lands should be exempted from the tailes, and all other imposts, for forty years: and fixed at six sols only all rights of controul on all sales, contracts, exchanges, partitions, &c. He likewise reduced to one denier *per acre* (*the twelfth part of a French penny*) the rights of registry, the hundredth denier, and the half-hundredth denier. He likewise granted to the bourgeois the enjoyment, during forty years, of free fiefs, as to all leases among them, relative to their undertaking; and lastly, renewed to them the privileges, granted by the edict of Henry IV. in 1607, to all who worked at draining marshes. Strangers, who employed themselves three years in the culture of these lands, were to become natives, and enjoy all the prerogatives of letters of naturalization. They had an entire liberty of establishing their habitations, in whatever part of France they desired, and of exercising such profession as seemed best to them, without, in any respect, losing any of their rights.

Under such favourable auspices, this rustic company were very eager in taking the last measures for beginning the execution

execution of their useful enterprize: Useful, it might truly be called, if, as the French assert, when completed it would augment population with more than three hundred thousand people! Beyond all doubt, such a vast extent of country, might be brought to produce a prodigious quantity of various commodities. They asserted likewise, that above an hundred thousand head of cattle, might, after some years labour, be maintained by artificial grasses; and as, continued they, it is demonstrable that the number of inhabitants of a country always bears a proportion to the quantity of subsistence they find; it is not to be doubted, but population in these new broke up farms, from the plenty of land and produce, will speedily be increased, after a proper beginning. For such happy consequences we may look, when hemp, leguminous plants, woods, and fruit-trees, are properly cultivated. How many manufactories of wool and silk may be established in these at present waste lands! While the fertility of the soil when properly prepared, and the near neighbourhood of the sea, promise plentiful productions, and the quickest sale and exportation!

But to return from these ardent expectations of the favourers of this undertaking, and to proceed with the execution. Messrs. Vallet de Salignac, and Chaulce de Chazelle, the first undertakers, began with a most judicious examination of the soil, in every part of their purchase, took the necessary time for making several experiments on it, and gained the best knowledge of its various natures in their power; they then published proposals to labourers, and all other workmen, that they would employ them by the year or day, as they liked best; or in case any of them liked better to hire portions of the land, they should be treated with the utmost favour. Seventeen hundred farms were established, each consisting of a tract of land, from one hundred to one hundred and fifty acres. They placed the habitation, barn, stable, garden, and orchard, in the center of each division, one half of which was converted into arable lands, and the other into pasture and wood—besides all this, the undertakers furnished the farmers with all the cattle necessary for their first works. Pursuant to the above division, the houses, barns, and stables, occupied six thousand acres: Five thousand were employed in gardens and orchards; one hundred and ten thousand in arable lands; eighty thousand in grasses; twenty thousand in woods; twelve thousand in hemp and flax; forty thousand in roads, canals, &c. &c. And

astly, three thousand for public places, as fairs, markets, &c. The whole two hundred and forty thousand acres.

We have given this public spirited work at large, not as the only one which France afforded; but to give the reader a better idea of the vigour with which such noble undertakings are carried on there. Indeed their operations in this respect, exceed those of other nations, that enjoy infinitely greater advantages.

However, let these public spirited geniuses exert themselves in whatever tracks they may, yet they all tend to one noble and immensely important end—the general encouragement of husbandry. Their writings insensibly spread a spirit of improvement, advance the knowledge of Agriculture, and by the success attending them, catch the attention of the government; and occasion ideas centering there, which, but for them, would never have awakened. Hence we see the present encouragement given by the court to the advancement of French Agriculture—and from hence we may expect yet more political steps for the same great purpose: and if ever France should be so happy as to see the occupier of the lands eased of those very heavy burthens under which he lies, and become as free and independent of the *oppressions* of the great, as the nature of the constitution will admit—and, at the same time, a bounty regularly advanced by the crown, for the exportation of corn, when under properly specified prices—then shall we see the wealth—the power—the importance of France. Then shall we see what the *great* Sully and his incomparable master would have made of that *great* kingdom.

Were such a system of policy adopted in France, England would find it highly necessary, if she meant to preserve the superiority she has hitherto kept, to find new methods of encouraging Agriculture, and to advance all the old ones to the highest possible point of perfection—if this were not the conduct of that nation, she would severely feel the rivalry of the French.

It is such a conduct as this, which alone can render France formidable to her jealous neighbour. The conquests which she may make on her frontiers are, to this, of paltry consequence. The Marquis of Tourbilli, M. du Hamel, &c. &c. &c. ought to be considered by their countrymen, in fifty thousand times a higher light than the most conquering generals—provided they had any such. No conquest equals in value, that of a nation's barren land.

ART. II. *How the Sides of barren Hills and other barren Land may be made so fertile as to cause Apple and Pear Trees to grow to much Advantage.*

THIS is an important article to write on, even to shew how fruit-trees may be made to thrive on the most barren land, For there is hardly any sort of land but what may be made fit for the growth of them by such artificial helps; as by mixing of sand with rotten dung, turf, and coal-ashes; or street or road dirt, mixed with pigeons, hens, sheep or rabbit's dung. All these or part of them may be made into a fertile compost, and being stirred twice to make it ferment and putrify, it may be placed over the roots of fruit-trees from time to time; and as such a compost lies on the surface earth, it will keep it in such a light spongy condition as will make it freely imbibe the rain-water, and lodge it so as to keep the tree in a continual thriving, and increase its roots and sap. Another advantage attending the planting apple and pear trees on the sides of hills, is, that if the trees are disposed in a regular way on a descent, the virtue of the compost will be washed down to the roots of the lower trees, and so on from one tree to another, till the whole plantation becomes in a great degree fertilized and improved by it. Others make use of malt-grains, and mix them with stiff earth and sand, by way of compost for forwarding the growth of fruit-trees, which indeed is less liable to cause cankered roots, than a compost prepared with horse-dung.

ART. III. *Modes of Agriculture recommended to the Gentlemen of Ireland.*

[From Mr. Young's Tour in Ireland.]

[Continued from Page 192]

BEAN COURSE. *For strong and wet soils.*

- | | | |
|-----------|--|------------|
| 1. Beans. | | 3. Clover. |
| 2. Oats. | | 4. Wheat. |

D I R E C T I O N S.

WHATEVER the preceding crop, whether corn, or old grass, (for the first manure is properly applied, but unnecessary on the latter) plough but once for planting beans which should be performed from the middle of December to

the middle of February,* and chuse either the mazagan or the horse bean according to your market; the single ploughing given must be performed so as to arch the land up, and leave deep furrows to serve as open drains. Harrow the land after ploughing. Provide slit planed deal poles ten feet long, an inch thick, and two inches broad, bore holes through them exactly at 16 inches asunder, pass pack-threads through these holes to the length of the lands you are about to plant, and there should be a pole at every fifty yards; four stakes at the corners of the extreme poles; fasten them to the ground, the intention is to keep the lines every where at equal distances and strait, which are great points in the bean husbandry to facilitate horse-hoeing. This being ready, women take some beans in their aprons, and with a dibber pointed with iron make the holes along the strings with their right hand, and put the bean in with their left; while they are doing one set of lines, another should be prepared and fixed ready for them. Near London they are paid 3s. and 3s. 6d. a bushel for this work of planting; but where they are not accustomed to it they do it by the day. The beans are put three inches asunder, and two or three inches deep. A barrel will plant a plantation acre. A light pair of harrows are used to cover the seed in the holes, stuck with a few bushes. By the time the cold easterly winds come in the spring they will be high enough to hand-hoe, if they were early planted, and it is of consequence on strong soils to catch every dry season for such operations. The hoes should be eight inches wide, and the whole surface of the space between the rows carefully cut, and every weed eradicated. This hoeing costs, near London, from 5s. to 7s. 6d. per English acre, but with unskilful hands in Ireland I should suppose it would cost from 12s. to 14s. per plantation acre, according to the laziness in working I have remarked there. When the beans are about six inches high, they should be horse-hoed with a shim, the cutting part ten or eleven inches wide. A plate of this tool is given in my *Eastern Tour*: It is cheap, simple, and not apt to be out of order, one horse draws it, which should be led by a careful person, another should hold the shim, and guide it carefully in the center between the rows. It cuts up all weeds effectually, and loosens the earth two or three inches deep; in a little time after this operation the hand-hoe should be sent in again to cut any slips which the

* In England it is proper to wait till the heavy Christmas frost breaks up, but as such are rare in Ireland the same precaution is not necessary.

shim might have passed, and to extract the weeds that grew too near the plants for that tool to take them. This is but a slight hoeing. If the weather is dry enough a second horse-hoeing with the shim should follow when the beans are nine or ten inches high, but if the weather is wet, it must be omitted, the hand hoe however must be kept at work enough to keep the beans perfectly free from weeds. Reap the crop as soon as a few of the pods turn darkish, and while many of them are green; you had much better cut too soon than too late. You may get them off in the month of August, (in England the mazagans are reaped in July) which leaves a sufficient season for half a fallow. Plough the ground directly if the weather is dry; and if dry seasons permit (but you must be guided entirely by the state of the weather, taking care on this soil never to go on it when wet) give it two ploughings more before winter, leaving the lands rounded up so as to shoot off all water, with deep and well cleansed furrows for the winter. It is of particular consequence for an early spring sowing, that not a drop of water rest on the land through winter.

The first season dry enough after the middle of February, plough and sow the oats, harrowing them in, from three fourths of a barrel, to a barrel and a quarter according to the richness of the land. As the sowing must be on one ploughing, you must be attentive to timing it right, and by no means to lose a dry season; cleanse the furrows, and leave the lands in such a round neat shape that no water can lodge; and when the oats are three or four inches high, as in the case before mentioned of barley, roll in clover seed as before, taking care to do it in a dry season. I need not carry the direction farther, as those for the turnep course are to be applied to the clover and wheat.

The great object on these strong and wet soils is to be very careful never to let your horses go on them in wet weather, and in the forming your lands always to keep them the segment of a circle that water may no where rest, with cuts for conveying it away. Another course for this land is,

1. Beans.

| 2. Wheat

In which the beans being managed exactly as before directed, three ploughings are given to the land, the third of which covers the wheat seed: this is a very profitable course.



POTATOE

POTATOE COURSE *For light and dry soils.**

- | | | |
|-------------|------------|-----------|
| 1. Potatoes | 3. Turneps | 5. Clover |
| 2. Wheat | 4. Barley | 6. Wheat. |

I will suppose the land to be a stubble, upon which spread the dung or compost equally over the whole field, in quantity not less than 60 cubical yards to a plantation acre. If the land be quite dry, lay it flat; if inclinable to wetness, arch it gently; in this first ploughing, which should be given the latter end of February or the beginning of March, the potatoes are to be planted. Women are to lay the sets in every other furrow, at the distance of twelve inches from set to set close to the unploughed land, in order that the horses may tread less on them. There should be women enough to plant one furrow in the time the ploughman is turning another, the furrows should be not more than five inches deep, nor broader than nine inches, because when the potatoes come up they should be in rows eighteen inches asunder. The furrows should be straight, that the rows may be so for horse-hoeing. Having finished the field, harrow it well to lay the surface smooth, and break all the clods, and if the weather be quite dry, any time in a fortnight after planting run a light roller over it, followed by a light harrow. About a fortnight before the potatoes appear, skim over the whole surface of the field with one whose cutting edge is two feet long, going not more than two inches deep; this loosens the surface mould, and cuts off all the young weeds that may be just coming up. When the potatoes are three inches high, horse-hoe them with a skim, as directed for beans, that cuts twelve inches wide, and go three inches deep, and immediately after hand-hoe the rows, cutting the surface well between plant and plant, and also the space missed by the skim. Repeat both these operations when the plants are six or seven inches high; and in about three weeks after give a hand-hoeing, directing the men gently to earth up the plants, but not to lay the mould higher to their stems than three inches. After this nothing more is to be done than sending women in to draw out any weeds that may appear by hand. Take them up early in October, first carrying away all the stalks to the farm yard to make dung: then plough them up *across* the field; making these new lands very wide, that is four, five, or six perch over, in order to leave as few furrows that way as possible. Provide to every plough from ten to fifteen men with three pronged forks, and a boy or girl

* Potatoes never answer on clays or strong wet soils.

with a basket to every man, and dispose eight or ten cars along the land to receive the crop. I used three-wheel carts, as they do not require a horse while they are idle. Have your wheat seed ready brined, and limed, and the seedsman with his basket in the field; as soon as the ploughman turns a furrow the seedsman follows him close, sowing the seed not into the furrow just opened, but into the land thrown over by the plough, the fork-men then divide themselves at equal distances along it, and shaking the mould which the ploughman turned over with their forks, the boys pick up the potatoes. In using their forks they must attend to leaving the land regular and handsome without holes or inequalities, as there is to be no other tillage for the wheat. They are also always to stand and move on the part unploughed, and never to tread on the other; they are also to break all the land in pieces which the ploughman turns over, not only for getting all the potatoes, but also for covering the wheat. Thus they are to go on until the field is finished. If your men are lazy, and do not work hard enough to keep the plough constantly going, you must get more, for they should never stand still. The treatment of this wheat wants no directions, and the succeeding crops of the course are to be managed exactly as before directed, only you need not manure for the turneps, if the potatoes had in that respect justice done them.

[*To be concluded in our next.*]

ART. IV. *Of the Enemies of Orchards; and their Remedy.*

SUCH are moss, caterpillars, ants, earwigs, snails, moles, and birds. If moss begin to over-run your trees, look to it betimes, lest it make them barren; for it has roots, and exhausts the sap of the trees. In this case use a hair-cloth after rain, or rub it off with a piece of wood formed like a knife at the end of a long stick or pole, which if used cautiously after rain will answer the end. Some smother caterpillars with burning wet straw, litter, or such like stuff under the trees in the spring-time. When ants eat the fruit, anoint with tar the trunks of the trees, to prevent their climbing up. But it is better to pour scalding water into the ant-hills after they are opened with a spade, for it surely kills them. Earwigs are caught and killed by placing hollow canes half a yard long in the trees, which they'll creep into. Snails must be gathered early in the morning. Moles are best caught by traps; for these sometimes undermine a tree and damage its roots. To
keep

keep off birds, it may be done with prepared feathers, or with a wooden clock or windmill fixed at the top of the tree. Take away, as often as they grow up, the shoots or twigs that proceed from the roots of the trees; for these are great robbers of the tree's nourishment. Some think it good husbandry to run a knife down the bark of a tree when it is bark-bound, for giving it room to extend itself the easier. If a tree be wounded, lay some wet clay or loam on the part, and bind it on with hay-bands. The canker will sometimes eat round a tree, and kill the heart of it in time. For this, the best way is to dress it with cow-dung mixed with urine. The same method may be used to keep young trees from cattle, which are apt to gnaw off the bark of them.

ART. V. *Another Way to prevent and kill Caterpillars, Lice, or Ants on Standard Fruit-trees, and clear them of Moss and Suckers.*

THIS is a sure way of doing it. Take one or more brands-ends, or what is usually called fire-brands, and put them under some straw or horse litter, which will make a smoak that will ascend amongst the boughs of the tree, and prevent or kill all caterpillars, lice, or ants on them: It will also clear the tree of and prevent moss, destroy worms at the roots of the trees, and suckers, if there be any shot up from the roots. If once doing it will not answer, it must be repeated. Apples growing on a mossy tree are apt to be chopt, rough coated, thick rhined, and ill tasted.

ART. VI. *On the Growth of some remarkable Timber Trees.*

[In a Letter to the Secretary of the Bath Agriculture Society; taken from the Bath Society's volume of Papers.]

GENTLEMEN,

I Herewith send you inclosed a letter which I lately received from a most worthy and ingenious gentleman of this county, whose accuracy and fidelity cannot be doubted; the subject of it is both curious and entertaining, whilst it will at the same time afford an opportunity of drawing from it conclusions the most useful and interesting to the public. You will perceive, that I am permitted by my friend to communicate it to your
truly

truly patriotic Society, whose condescension in having honoured me with the title of a Member of it, as it claims every mark of respect, and every attention I can possibly pay to their views and inclinations, so it would have left me without excuse had I omitted adding this valuable performance to their collection, which, if not already printed off, will, I presume, be enriched by it.

I am, with particular respect, your's, &c.

Hethel, near Norwich,

THOMAS BEEVOR.

Oct. 11, 1779.

' DEAR SIR,

Stratton, Oct. 1, 1779.

' IN compliance with your request, I here send you the measures of some of the largest trees, taken by myself, in several rambles about the kingdom. But although I have been in parts of every county of England and Wales, perhaps larger than these may have escaped my search; as I never heard of the Demary oak by Blandford, until I read Mr. Hutchinson's account of it in his history of Dorsetshire. The largest oak I have seen is that at Cowthorp, or Coltsthorpe, near Wetherby in Yorkshire, of which the ingenious Dr. Hunter gives a plate in his edition of Evelyn's *Silva*. The Doctor calls this tree 48 feet circumference at 3 feet from the ground; and I found it in 1768, at 4 feet, 40 f. 6 in.; and at 5 feet, 36 f. 6 in.; and at 6 feet, 32 f. 1 in.—Here, to save repetition, 5 feet is the height I always measure at, as easier to see the level of the string, and also being clearer of the swellings of the roots.

' In 1759, the Oak in Holt Forest, near Bentley, was, at 7 feet, 34 f. There is a large excrescence at 5 and 6 feet, that would render the measure unfair. In 1778, this tree was increased half an inch, in 19 years. It does not appear to be hollow; but by the trifling increase, I conclude it not sound.

' The Fairtop Oak in Epping Forest, seeming sound in 1754, and the Earl of Thanet's hollow Oak, in Whinfield-park in Westmoreland, in 1765, were both 31 f. 9 in.

' The handsomest Oak I ever saw was in the Earl of Powis's noble park by Ludlow, in 1757, though it was but 16 f. 3 in. But it ran quite strait, and clear of arms, I believe, near or full 60 feet, and had a large fine head.

' In Benel church-yard, 3 miles north of Dunbarton, in Scotland, in 1768, a very flourishing Ash, 16 f. 9 in.

' In 1754, a fine Wych Elm, by Bardley church, in Suffolk, 25 f. 5½ in.; in 1767, this tree was 26 f. 3 in. Increased 9½ in. in 13 years.

' I have a hollow Wych Elm by Stratton church, at 4 feet, 29 f. 6 in.; and I had, in 1760, in my old park in Hevingham, a headed Alder, at 4 feet, 16 f. 2¼ inches.

' In 1755, your Hawthorn, by Hethel church, was, at 4 feet, 9 f. 1¼ in. and one arm extended above 7 yards.

' The tallest trees that I have seen were Spruce and Silver Firs, in the vallies in Switzerland. I saw several firs in the dock-yard in Venice above 40 yards long; and one of 39 yards was 18 inches diameter at the small end. I was told they came from Switzerland.

' In Lord Petre's old park, at Writtle in Essex, in 1764, I found a Hornbeam above 12 feet; and the old Chesnut, (very hollow) at 3½ feet, the least part 42 f. 5 in.; at 5 feet, 46 f. 1 inch; and at 6 feet, 49 f. 5⅞ inches.

' In 1759, the chesnut in Lord Ducie's garden, at Tortworth in Gloucestershire, was at 6 feet, (the lowest I could measure it, as the garden-wall joins to the tree on two sides) 46 f. 6 in.; it did not appear hollow, but had very few and small boughs: as I took the measure in a heavy rain, and did not measure the string till after I returned to the inn, I cannot so well answer for this, as the other measures.

' I omit beech, birch, maple, abele, &c. as I have heard of much larger trees of those sorts than I have seen.

' Perhaps an account of the annual increase of some trees will not be foreign to your purpose.—You know it is difficult to discover the age of old trees, as very few old planters kept registers of their plantations.

' I have seen a memorandum of a former Rector of Hevingham, wherein is written, that "in 1610 he planted two chesnuts "by his church-porch;" the largest was, last autumn 1778, 14 f. 8½ inches, or 176½ inches in 168 years. Supposing the tree to have been 9½ inches when planted, you see it increased an inch yearly.—And I have a deed between an ancestor of mine, as Lord of the manor of Stratton, and his copyhold tenants, upon his inclosing some of the waste, wherein the abuttal to the west is upon the road leading from Hevingham to Norwich, which you know cannot be mistaken: the date is 1580, and the largest oak on that bank, at 4 feet, was, last autumn 1778, 16 f. 3½ inches, or 195½ inches in 198 years.

' Now

'Now, from the increase of the Bentley oak, and the two last-named trees, I conclude the Tortworth chesnut is not less than 1100 years old; perhaps it may be much older.

'I offer you the following calculation for your amusement; from its vast bulk, you must conclude it was a very healthful tree. Suppose it increased an inch and quarter yearly the first century, an inch the second, three quarters the third, half an inch the fourth, one-third the fifth, and thirty inches each century for the second 500 years, and a little less than a quarter for the eleventh century; the account will stand thus: Inches.

The first century, at an inch an quarter,	- - -	195
Second ditto at one inch	- - -	100
Third ditto at three quarters	- - -	75
Fourth ditto at half an inch	- - -	50
Fifth ditto at one-third of an inch	- - -	33 $\frac{1}{3}$
Second 500 years at 30 inches per century	- - -	150
Eleventh century at 24 $\frac{2}{3}$ inches	- - -	24 $\frac{2}{3}$

46 feet and a half, or 558 i.

'There is a tradition, that this tree was called the great chesnut in King John's time; and, supposing it grew in this proportion, it was 540 years old when he came to the throne, and eleven yards in circumference.

'Sir R. Atkins, in his history of Gloucestershire, (p. 413) say, 'by tradition this tree was growing in King John's reign, 'and is 19 yards in compass;' and I believe it is at least so large near the earth. Now, although I have sufficient proof of young trees increasing much more than my supposed growth of this chesnut, yet perhaps I have allowed sufficiently for that tree, as it grows on a stiff clay; which, though perhaps it may in the end produce the largest trees, yet I believe most trees will grow faster in lighter soils.

I planted an oak in 1720, which was last autumn 7 f. 9 in.; I do not pretend to remember the size when planted; but in Autumn 1742, it was 2 f. 11 $\frac{1}{4}$ in.; i. e. 57 $\frac{1}{4}$ in. increase in 36 years, i. e. above an inch and a half yearly. But this oak was taken from a very poor land to a tolerable light soil, and stands single; and, perhaps, the growth was helped by digging a large circle round it in several winters, and in other years having that circle covered with greasy pond mud; and in some dry seasons, I washed the stem: and the advantage of washing I experienced in 1775, greatly to my satisfaction. You may see the full account in my letter to the Bishop of Bath and Wells,

in the 67th volume of the *Philos. Transf.* in 1777. But supposing these endeavours did not help the growth of this oak, yet I apprehend it will not be 225 inches in circumference when 200 years old. For though the Hevingham chestnut is a healthful tree, it has increased but 25 inches and a half in the last 36 years, (viz. from my first measuring it) which shews, if it had not gained more in its younger state, it would have taken 250 years to make its present bulk of 176 inches: and my oak of 198 years old has, from 1760, increased only $12\frac{3}{4}$ inches, in 48 years: which proportion would take 275 inches: and the oak by Bentley, according to the last 19 years increase, would take above 15500 years to make 408 inches, the present circumference of the tree.

' If you think any of these measures will afford entertainment to the Society at Bath, you have my leave to offer this letter to them; which will shew at least that I have pleasure in obeying your commands.

' I am, with great respect,

' Your most humble

' and obedient servant,

' R. MARSHAM.'

' *Thomas Beevor, Esq.*

' P. S. I have put dates to all the measures, that if your curiosity should lead you to measure any of the trees, you may know what progress they make in a certain time.'

ART. VII, *Observations on the Mnyum Moss,*

GENTLEMEN,

IF the following hint is worthy the notice of your Society, it is much at their service.

Wherever the mnyum moss, the red rot, and marsh pennywort grow, there the water is uncommonly cold, and perhaps of a poisonous or mineral tinge. Grazing all low lands where such plants grow, as above described, will occasion the death of many sheep, and cause some disorders in larger cattle.

I am, &c.

W. B.

ART. VIII.

ART. VIII. *On the use of Soot as Manure.*

MR. SYLVAN,

IT was an observation I think of one of your Correspondents, that chalk was a medicine to the land, rather than food: the remark was a good one, as it forms some idea of the particular advantages of different manures. We may class them all under the general head manure, whether of one kind or the other. Stable dung may be undoubtedly called food; but as the animal body is injured by too much food, so may land, or rather the produce of the land, be very materially affected by an injudicious, or too great a quantity of dung. Medicines wrong applied will injure the constitution, so will those kinds of manure which may be properly enough called physic, if applied on soils ill suited, or on crops without judgment or discretion. Soot is a manure partaking of both kinds; as a medicine it is warm and nourishing, consequently well suited to sour cold land, it destroys moss and insects, and is on the first account proper for grais land subject to moss, and to corn land in the spring, when the wheat is injured by the worm; the quantity may be from ten to twenty bushels per acre. It has been observed, not contrary to experience, that dunging for corn is not so well as dunging for the preceding crops, but this does not prevent the use of soot as a top-dressing. The best method of using soot is to sow it from a seedlip in the months of December, January, or February; if snow lies on the ground, that opportunity should be particularly embraced, as it will be by the melted snow excellently carried into the ground, and the person who sows it will better see his work before him. T. L.

ART. IX. *Of the Use of Sea Weeds as Manure.*

THE use of sea weeds is confin'd to those parts of the kingdom which are near the sea coast, for it must be used in some quantity: but it is an advantage too many neglect, who have it thrown as it were into their mouth: and few that can be offered are greater.

The use and value of sea weeds, as manure, depend upon the plainest principle in the world. All vegetables whatsoever are rich manures when in a state of decay: salt also is a very rich dressing: now sea weeds have the double advantage of their own vegetable nature, and of the sea water in which they grow.

Nay

Nay, there is something yet more than this in favour of their richness. Curious persons, who have examined them according to chemistry, have found that they contain much the same principles as animals: and it has since that been discovered by the help of glasses, that they are always crowded with little insects that live upon their slimy surfaces, or in their little hollows. This is so strongly visible in many of them, that some ingenious persons, both in England and elsewhere, have supposed them not to grow as plants, but that they were made by those little creatures.

Now, to consider the sea weeds in this light, which is considering them truly, what a right have they to the husbandman's regard as a manure? First, from their vegetable nature, for they are really plants, whatever those persons may fancy; in the next place, from their saltiness; and lastly, and above all, from their animal nature; for every thing of the animal kind is rich in fruitful qualities.

Let us examine by practice whether these reasonings are right; for all the reasonings in the world are to be rejected that are not supported by experience and fact. Let us look into the places where this manure is used.

In Devonshire, upon and near the coast, they use the ouze and mud dragged up wherever they conveniently can get at it, as a manure. They take this, weeds and all, and let them rot together, before they spread them on the ground: this is a very rich manure, but in this case the benefit is laid to the mud; the weeds are not much regarded,

In Cornwall, where the shores are sandy or stony, and they cannot have this easy advantage of salt-water mud, they tear off the sea weeds from the rocks and stones; and rake together such as are cast up by storms. These they lay upon the ground without any preparation, ploughing them in, and they enrich it to a surprizing degree.

The first year many of the tough kinds remain almost entire in the soil: but they give a great deal of fruitfulness to it notwithstanding: the next, they generally break and rot, and they continue nearly equal, in point of fertility, that and the succeeding year.

The first year, the salt, and the little animals that are about them, fertilize the ground; the next, and the third, 'tis their own vegetable substance which decays, and enriches the soil; the smaller and tenderer kinds the first year with the leafy part of the others; and the toughest and the remaining stalks the last.

In some parts of Cornwall, they pile these in heaps, and cover them, that they may rot before they use them. This makes them take effect in a prodigious manner the first year, but they do little the second, and the third less. We would advise the farmer to use them just as he takes them up : for their first effect in this way is sufficient to satisfy his warmest expectations ; and the benefit lasts longer.

Of all the manures used, none is so quickly spent as rotted sea-weed ; but none takes a quicker effect.

ART. X. *Accidents to which Cattle and the Crops are liable.*

UNDER this head may be ranked, heat, drought, rain, hail, snow, winds, blights, easterly winds, late frosts, weakness and starving, mildew, smuttiness, &c.

Of Heat. Tho' heat be the very principle of life in the universe, yet it may be attended with fatal consequences to every thing in nature. The degree determines the utility of every thing ; and in the present case, that which when moderate is the support and preservation of all things, when excessive is their destruction.

We are not here to enter into the effects of heat in the condition of actual fire, which dissolves, dissipates, or destroys all known substances ; but that degree of it only, which may be in the temperature of the air. The farmer will not bring metals to the furnace, nor expose gold or diamonds to the power of great burning-glasses, which in their full force scatter the one, and split the other to shivers ; these are the amusements of philosophy ; we are concerned only with its use. We shall confine ourselves to the nature and effects of that degree of heat which is at times felt in the air, and to its influence upon the cattle and produce of the ground : and we shall advance nothing but what stands on certain proof, and what reason will find it easy to comprehend.

Our island is subject in the summer months to very considerable heat, when accidents conspire to continue it unallayed. Nature has so well adapted the creatures of the island to this, that they are none of them destroyed by it ; nor the smallest plant, unless irregularly exposed to it : but its effects are very hurtful, though not so great as utterly to kill them. We see cattle fainting and losing their flesh, and plants fading and drooping, according to the degree of the heat ; and thus the farmer

farmer is with his care to prevent, by shade and shelter for the one, and by watering the other when needful.

Many plants, and most animals, bear the effect of cold better than that of heat, for this plain reason, that the cold only condenses their juices, whereas the heat dissipates them.

The effects of this temperature of the air are more sensible on plants than animals; wherefore we shall principally consider them in that light.

Many plants will grow in a very considerable degree of cold: but when it comes to freezing, tho' a multitude endure it and keep alive, yet few have the vigour to shoot. The slightest frost stops the growth of most plants, and a degree somewhat stronger stops that of all.

This is a principle perfectly established by experience, and the farmer will learn from it what he is to expect with regard to his winter crop.

Young plants suffer more by frost than those somewhat advanced in growth; therefore let him provide for such as are to stand the winter accordingly, and expect from them nothing but what nature will support. Let him sow them in such time in autumn, that they may have some strength before the coming in of frosts; and let him expect little more from them during winter, than to establish themselves well in the ground. In the days of frost he sees they can only support themselves alive, for to grow in that time is against the course of nature; therefore what little shoots they can make must only be during the open weather; and these will be so checked by the return of the frosts, that there cannot be any great progress.

As nature has provided for the supporting the generality of plants alive during the coldest weather we have in this island, we are to be under no farther concern on that head; but to examine the various degrees of warmth and heat; rising from this, to the extremum of what our seasons afford.

The warmth of the softer winter months brings plants a little forward; the gentle heat of the spring makes them shoot apace; the greater heat of Summer ripens their flowers and seeds; and even the greatest, as we have shewn, is not enough to destroy them, unless the negligence of the husbandman join with it.

A gentle warmth puts the sap of plants in motion; and the greatest power of it, within moderation, unites and cements their best juices for the formation of their most useful products: but when we come to a degree any thing considerably greater than this, it operates in a way directly contrary to what we have

have named, separating and dispersing their best particles, instead of bringing and uniting them together. It is therefore a plant pushes out its flowers, and ripens its fruit or seed in this moderate degree of heat; but in the extream fades and decays.

Many a crop that might have produced very well is lost, or comes to little, for want of the farmer's proper assistance. Different soils and different situations make plants bear heat differently, some better, others worse; as also their several kinds. And with proper regulation there is scarce any such thing as a crop's utterly failing. When we consider how much hotter some countries are than ours, this will appear less strange; for there are plants which live in the hottest of them.

Experiment shews what would scarce else be credible; respecting this article, Dr. Hales, whose veracity or accuracy never have been or will be questioned, asserts, that plants will endure without prejudice a greater degree of heat, than that of water made as hot as that a person can but just endure to hold his hand in it without stirring it about. He has therefore fixed upon a larger degree of heat than this for the utmost which plants will bear, and ascertains it at that heat of water upon which melted bees-wax begins to harden.

This is an experiment very happily chosen, since bees-wax being a vegetable juice, though collected by the bee, such a degree of heat as would absolutely dissolve that, must be the utmost point plants can bear.

This explains to the farmer how much his own neglect is to be blamed at many times, when he gives up his crop as spoiled by heat: this is a degree of it to which plants never will be naturally exposed with us: therefore he may for his satisfaction establish this maxim; that if he conduct himself properly in all the articles we have named, in the sowing and management of any crop, it will never be lost by means of the heat.

If a weather-glass of the common make be divided into a hundred parts from the degree of cold at freezing, to this degree of heat determined by the melted wax, it will give all the degrees of heat to which plants will ever have any reference. Few houses are without a weather-glass, and the farmers never should. The kind made for this purpose is that called a thermometer; and the husbandman will do well to have one with this division, which will come as cheap as any other. This will shew him at all times what is the degree of heat in the air, much better than what he feels at random by his body; and according to this he will know in what degree of health, or in what danger, his crop is from this article.

In a space thus divided, sixty-four degrees is about the heat of the blood in animals. Experiments have shewn, that the heat of the external part of the body is that of about fifty-four of these degrees: the heat of milk as it comes from the cow is fifty-five degrees; which degree is about the same that serves for the hatching of eggs; and that of new made urine is about fifty-eight.

These degrees of heat being known, with respect to the parts and bodies of animals in health, they give us a mark by which to know their sickness; and the comparison of what degree of heat our summers commonly afford, with what plants will bear, which is perfectly known by this method, will farther confirm to the farmer what we have asserted already, that when his crops fail, as is supposed by heat, it is not by the absolute effect of that, but by his mismanagement joined with it.

The common degree of temperate weather in this division is about eighteen degrees; and the great heats of summer will raise it to eighty-eight degrees. This is a vast advance; it is twenty-four degrees hotter than the blood of animals naturally should be: but even this, though with care it will make cattle faint, and expose them to disorders, yet is no less than twelve degrees below the extreme heat that plants will bear without prejudice, if they be properly managed.

There are countries in which the plants all endure this degree of heat many months, for several hours each day, and more; but what is seen in them verifies what is before said. They hang their leaves and fade, and would be killed by it, but that they are supported and refreshed by the great dews of the evenings and nights in those places.

Nature has for this reason made many of the plants of those hot regions of such a form, that they have no leaves; these being the part that suffers most readily by the violence of heat.

Though we have named the height of eighty-eight degrees, as what the weather sometimes arrives at in our summer, the farmer is not to imagine that every summer is so hot; much less that every plant must of necessity be exposed to such a degree.

The common heat of a summer day in the hotter months, and in the middle of the day, is about fifty degrees of this measure. There is a great deal of difference between this and the heat marked at eighty-eight, which yet is twelve within what plants may bear. But yet this is a degree of heat to which his cattle are not exposed, though a great many parts of his

his crop are. At those times when the heat is at fifty degrees in the sun, which is to be called a summer noon-tide heat, it is but thirty-eight degrees in the shade. The farmer should carefully observe this article, that he may see what a vast deal is in his choice by a proper management. 'Tis true that the great heats of summer subject his cattle to many disorders; but he sees here, that it is in his power to moderate that heat twelve degrees in fifty by a proper shade.

Motion encreases heat to a very great degree, therefore let him take care, that when the days are hottest his cattle are kept the most quiet. In the same manner as the middle of the day is the hottest part of it, let them be kept particularly quiet during that time. These are rules founded on plain reason and daily experieuce, yet, though plain and obvious, they are not sufficiently regarded. The husbandman may, by an irregular proceeding, heat his cattle as much in May, as the nature of the season would do in July: and on the other hand, by proper hours of rest, and due shelter, he may in the effect reduce the most extreme sultry weather to the condition of temperate.

With respect to plants, an observation of the degree of heat, and of their general condition and progress, will shew abundantly the truth of what was before asserted, respecting the effect of a moderate heat for promoting their growth, and the effect of a greater degree of it in ripening their seeds. At a medium the heat is in April at about fifteen degrees. This with the assistance of the rains at that season sets the plants to shooting. In May and the beginning of June it advances from that to twenty, twenty-five, and thirty degrees; and in this time they grow most, and strengthen themselves best. After this come the more extreme heats, and the seed ripens. In general the degrees of heat between twenty and thirty, are those most suited to the growth of plants. If we may be allowed to give a sort of general calculation for the rest of the year, we may say, that the common heat of the beginning of spring, and the decline of autumn, may be reckoned between ten degrees and eighteen; and the winter heat within ten degrees of the freezing point.

[*To be continued.*]

ART. XI. *An Abridgement of several Letters published by the Agriculture Society at Manchester, in consequence of a Premium offered for discovering, by actual Experiment, the cause of the Curled Disease in Potatoes.*

[From the Bath Society's Volume of Papers.]

[Concluded from Page 142.]

L E T T E R X.

SET potatoes with the sprits broke off, and they will (says the writer of this letter) be curled ones; if set with the sprits on, they will not be curled. Again, take a potatoe which is sprit, and cut a set off with two sights; break one sprit off, and let the other stay on, and set it; the former will be curled, and the latter will not.

When you have holed your potatoes, take them out before they are sprit, and lay them dry until you have set or sown them, and you will have no curled potatoes.

L E T T E R XI.

This writer was at the expence of procuring sets at fifty miles distance, and where this disease was not known; the first year's trial was successful; the year following he procured sets from the same place; but one-fifth of his crop was infected. By way of experiment, he planted sets from roots which had been infected the year before, and some of these produced healthy plants, free from all infection.

As every effect must have a cause, he supposed it might be some insect, which, living on the leaves, gave them that curled and sickly appearance, as is the case in the leaves of many shrubs and trees. But whether the insect is lodged in the *old sets*, and to be destroyed at the time of planting, or, proceeding from some external cause, can only be destroyed afterwards, he is not yet certain, although he has made the following experiments:—

On a piece of ground that had not been dug for twenty years, he planted four rows of sets, which he knew to be perfectly clear: the drills were two feet distant; the sets one foot distant in each drill. He then planted on the same ground
four

four rows with sets from curled potatoes, at equal distances; in each row were about twenty sets.

Lost 1st, the curled state.

No. 1. without manure,		No. 3. in foot,
2. in salt,		4. in quick-lime.

Lot 2d, the clear sets.

No. 1. without manure,		N. 3. in foot,
2. in salt,		4. in quick-lime.

Those planted in salt and foot in both lots, were destroyed. In Lot 1, No. 1, and 4, all curled. Lot 2, No. 1, and 4, quite clear.

This experiment was made on a supposition, that the insect lodged in the set, and must be destroyed on planting. But of that he is not fully satisfied. He repeated salt, foot, and quick-lime, on the branches of several curled potatoes. Salt destroyed all he touched with it. Lime and foot had, he thought, a partial effect on the plants. After some time, they appeared almost as healthy as the rest. Thus, although he had done little towards the cure, he flatters himself he has pointed out the cause, the insects on the curled plants being not only very numerous, but visible to the naked eye.

L E T T E R XII.

This writer ascribes the cause of the curled disease in potatoes to the frost and bad keeping in winter and spring before setting. They are liable to be damaged by frost after they are set, but this may be prevented by covering. If it be asked why frost did not injure them formerly, he answers, it is only the new kinds which are apt to curl. To this may be added, that less care is now taken of the seed than formerly. To prevent the latter, let them remain in the ground covered with haulm or litter, till the time they are wanted for setting; and, in case no frost touches them afterwards, they will be free from the disease.

L E T T E R XIII.

This writer says, the red potatoe was as generally planted as the winter white and the Lincolnshire kidney are now. The first, being a later potatoe, did not sprout so early as the others.
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The white sprout very early, and therefore should first be moved out of the place where they have been preserved in the winter. Instead of that, they are often let remain till their roots and sprouts are matted together. On separating them, these sprouts are generally rubbed off, and they are laid by till the ground is ready; during which interval they sprout a second time: but these second sprouts, being weak and languid, will shrink, sicken, and die, and the fruit at the roots will be small, hard, ill-shaped, and of a brown colour.

Now, if cutting off the sprouts once or more, before the sets are put in the ground, be the cause (as he verily believes it is) of the curled disease, an easy remedy is at hand. When the potatoes intended for sets are dug up, lay them in a west aspect as dry as possible: in such a situation they will not sprout so soon. The best time for removing most sorts is, the first fine day after the 24th of February. Cut them into sets as soon as possible, and let them remain covered with dry sand till the ground is prepared, which should be a winter-fallow. Lay the sets in without breaking off any of the sprouts, for the second will not be so vigorous.

This accounts for one sprout out of three from the same set being curled. The two stems not curled rose from two later eyes, and were first sprouts. The sprout curled was a second, the first having been rubbed off.

L E T T E R XIV.

This writer says, that last spring one of his neighbours cut and set, in the usual way of drilling, some loads of the largest potatoes he could procure; and more than half of them proved curled. Being a few sets short of the quantity wanted, he planted some very small potatoes, which he had laid by for the pigs. These being fully ripe and solid, there was not a curled plant among them. He apprehends, the others being curled was owing to their not being fully ripe. A crop of potatoes, set this year in rows, on ground that had borne a crop of them last year, were mostly curled; but many plants came up from seed left in the ground last season, and there was not a curled one among them.

L E T T E R XV.

Although the writer of this letter observes, it is generally believed, that taking up potatoes, intended for the next year's set, too soon, is a principal cause of the curled disease, he has
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his doubts respecting it ; having let some remain in the ground all winter, and vegetate the following spring, some of them were curled, and others not, in like manner as those sets proved which he took up and planted as usual. This, therefore, he infers, cannot be the principal cause. The old white rough, and the kidney potatoe, are as subject to this disease as the rest. Red potatoes, of most kinds, are seldom affected with it.

L E T T E R XVI.

Of late years, this writer says, great improvements have been made in setting potatoes, and cutting the sets. The ground is dressed cleaner and dunged stronger. Many people, in drilling, wrap up the sets entirely in the dung ; by which means, though their potatoes are larger, the disease seems to be increased. They also cut their sets out of the richest and largest potatoes, which is perhaps another cause of this evil. In cold countries, where they set their own seed which has grown on poor land, with less dung, they have no curled plants. On the contrary, when they bought rich and large potatoes for seed, they have been curled in great quantities. He believes, the richness and largeness of the seed to be the cause of the evil ; for he does not remember to have seen a curled stem which did not spring from a set of a large potatoe.

L E T T E R XVII.

This writer apprehends the curled disease in potatoes, to proceed from a defect in the *planta seminalis* or seed plant ; and from comparing curled ones with others, there appeared to be a want of, or inability in, the powers of expanding or unfolding the parts of the former ; which, from this defect, forms shrivelled, starved, curled stems. On examining some of the sets, at the time of getting the crop, he found them hard and undecayed ; so hard indeed, that some of them would not be softened with long boiling. This led him to think that some manures might have the same effect on them as tanner's ooze has on leather, and so harden them, that the embryo plant could not come forth with ease ; but a closer examination taught him otherwise, and that they grow equally in all manures.

Some have thought that the fermentation is occasioned by too great quantities being heaped together ; but the writer has seen an instance, wherein a single potatoe, preserved by itself, when set, produced stems of the curled kind. He thinks the

most

most consistent and rational opinion is, that the disease is occasioned by the potatoes being taken from the ground before the *stamen*, or miniature-plant, is properly matured and ripened.

For, let it be observed, that the potatoe, being a native of a warmer climate, has there more sun, and a longer continuance in the ground, than in its present exotic state; consequently it has not the same natural causes here to mature the seed-plant, as in its native state. We ought, therefore, to give all the opportunities our climate will admit for nature to complete her work, and fit the *stamen* for the next state of vegetation, especially in those intended for seed. But if the potatoe be taken up before the seed-plant be fully matured, or the air and sap-vessels have acquired a proper degree of firmness or hardness, it must, when thus robbed of further nutrition, shrivel up; and when the vessels, in this immature state, come to act again in the second state of vegetation, they may produce plants which are curled.

If it be asked, why are they more common now than formerly? he answers, that before the present mode of setting them took place, people covered them, while in the ground, with straw, to protect them from frost.

If it be asked, why one set produces both curled and smooth stems? he answers, we suppose every eye to contain a *planta seminalis*; that all the embryos, or seed-plants, contained in one potatoe, are nourished by one root; that as in ears of corn, some of these seed-plants may be nourished before others.

One of his neighbours, last year, set two rows of potatoes, which proving all curled, he did not take them up; and this year there is not a curled one among them. Such potatoes, therefore, as are designed for seed, should be preserved as long in the ground as possible.

LETTER XVIII.

This writer advises such sets to be planted as grow in moss-land; and, he says, there will not be a single curled one the first year. This is affirmed by the inhabitants of two townships, where they grow amazing quantities.

A medical gentleman sowed last year two bushels of sets from one of the above places, and had not one curled; but on sowing them again this year he had a few.



T H E
FARMER'S MAGAZINE.

AUGUST, 1780.

A DISSERTATION *on the Progress and present State of*
AGRICULTURE. [Continued.]

S P A I N.

SPAIN, which was known in the first ages under the names of Hesperia and Iberia, was inhabited by people, who, defended on one side by the sea, and on the other by the Pyrenees, enjoyed in peace an agreeable climate and a fruitful country, and who governed themselves according to their own customs. They were so much attached to hunting, that they left the toils of agriculture to their wives; the fatigues of which they had encouraged them to support, by establishing general assemblies annually, in which those women who had most distinguished themselves in the labours of agriculture, received public applause.

Such was the situation of Spain, when the Carthaginians, whose ships covered the Mediterranean, introduced themselves as friends, who came to barter several articles of convenience against metals that were thought to be useless. The temptations of a trade, so advantageous in appearance, seduced the Spaniards so powerfully, that they permitted the Carthaginians to build upon their coasts houses for their occasional residence, magazines for the security of their merchandise, and temples for the exercise of their religion. These establishments insensibly became fortified places, of which this power, whose policy was superior to its military skill, availed itself to enslave a credulous people, who were always divided among themselves, and always irreconcilable in their enmities.

VOL. V.

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When the Carthaginians were become masters of the most extensive and most valuable part of this fine country, they seemed either to be ignorant of the means of establishing their dominion there, or to neglect them. Instead of continuing to appropriate to themselves the gold and silver, with which the conquered nations were abundantly supplied from their mines, by exchanging commodities of little value for those metals, they chose to seize them by force. The violence of these proceedings threw the conquered provinces into a state of despair, and excited in those which were yet free, an extreme aversion for so intolerable a yoke. In this situation they all of them resolved to accept of assistance, as fatal to them as their injuries were cruel. Spain became a theatre of jealousy, ambition, and hatred, between Rome and Carthage.

The two commonwealths contended with great obstinacy for the empire of this beautiful part of Europe; and, perhaps, it would finally have belonged to neither of them, if the Spaniards had continued quiet spectators of the contest, and left the rival nations time to destroy each other. But they chose to become actors in the bloody scene, and thus reduced themselves to be slaves to the Romans, in which state they remained till the fifth century.

In a short time, the degeneracy of those masters of the world inspired the savage nations of the north with the enterprising idea of invading the provinces that were ill governed and ill defended. The Suevi, the Alani, the Vandals, and the Goths, passed the Pyrenean mountains. These barbarians, being robbers by profession, were incapable of becoming citizens, and made war upon each other. The Goths, superior in abilities or good fortune, subdued the rest, and reduced all the kingdoms of Spain into one; which, notwithstanding the defects in its constitution, and the unbounded extortions of the Jews, who were the only merchants, supported itself till the commencement of the eighth century.

At this period, the Moors, who had subdued Africa with that impetuosity which was the characteristic of all their enterprises, crossed the sea. They found in Spain a King destitute of virtue and abilities; a multitude of courtiers, and no statesmen; soldiers devoid of courage, and Generals without experience; an effeminate people, holding the government in contempt, and disposed to change their master; and they also found rebels, who joined them for the sake of plundering, burning, and massacring all that opposed them. In less than three years, the sovereignty of the christians was destroyed, and that of the infidels established upon a solid foundation.

Spain

Spain was indebted to its conquerors for the first principles of taste, humanity, politeness, and philosophy; as also for introducing among them several arts, and a considerable trade. These brilliant prospects were not of long duration. They were soon dissipated by the numberless sects that arose among the conquerors, and the irreparable faults they committed in establishing distinct sovereigns in all the principal towns of their dominion.

During this time the Goths, who, to screen themselves from the power of the Mohammedans, had sought an asylum in the extremity of the Asturias, were labouring under the yoke of anarchy, plunged in a barbarous state of ignorance, languishing under inexpressible poverty, and perpetually harrassed by civil wars. Under the influence of these calamities, far from thinking to avail themselves of the divisions subsisting among their enemies, they were sufficiently happy in being forgotten, or in not being known by them. But as soon as the crown, which was originally elective, became hereditary in the tenth century; as soon as the nobility and bishops became incapable of disturbing the state; and that the people raised from slavery were admitted to a share of the government, the national spirit began to revive. The Arabians, attacked on every side, were successively stripped of their conquests; and at the end of the fifteenth century, they had but one little kingdom remaining.

Their fall would have been more rapid, had they engaged with a power that could have united in one common center the conquests it gained over them. But the revolution was not effected in this manner. The Mohammedans were attacked by different chiefs, each of which was at the head of a distinct state. Spain was divided into as many kingdoms as it contained provinces; and it was not till after a long time, several successions, wars and revolutions, that these small states were at last united in the two monarchies of Castile and Arragon. After this the marriage of Isabella with Ferdinand having happily joined all the crowns of Spain into one family, they found themselves equal to the enterprize of attacking the kingdom of Granada.

This state, which scarcely occupied one-eighth part of the peninsula of Spain, had always been in a flourishing condition from the time of the invasion of the Saracens: but its prosperity had increased in proportion as the successes of the christians had induced a greater number of infidels to take refuge there. It consisted of three millions of inhabitants. Throughout the rest of Europe there were no lands so well cultivated; so numerous and improved manufacturers; so regular and so ex-

tensive a navigation. The public revenues amounted to more than 300,000*l.* a prodigious sum at a time when gold and silver were very scarce.

These several advantages, far from deterring the monarchs of Castile and Arragon from invading Granada, were the motives that principally incited them to the enterprize. They were obliged to carry on a ten years bloody war in order to subdue this flourishing province. The conquest of it was completed by the surrender of the capital in the beginning of January, 1492.

The visible decay of Spain may be dated from the total expulsion of the Moors and Jews in 1611. This decrease of her power was so rapid, that some Spanish writers proposed schemes for the political restoration of their empire, as nearly as the year 1619. It is easy to conceive what a vacancy the loss of a million of laborious men must make in their country, at a time when the nobility, who still retained all the prejudices and barbarous privileges of the Visigoths, from whom they boasted their descent, threw all the labour upon that class of men they despised, though in fact the most useful. The military, that destructive profession, was the only one that was entitled to any distinction; and the arts, by which things are brought into existence, preserved, and kept in order, stamped a mark of dishonour upon those who professed them. If agriculture were in the least attended to, it was because there were slaves. If there were any trade, it was because there were Jews. Lastly, if Spain had any manufactures, it was owing to the Moors, who led a laborious life, and were generally held in contempt.

While these unhappy men were driven by despair to take refuge upon those barbarous coasts, Spain triumphed in her blind fanaticism; and imagined herself still the richest kingdom in the world, without even entertaining a suspicion that the ships which crowded her harbours were continually exhausting her substance. When the Spaniards became sensible of the diminution of their specie, they imputed it to the loss of some Indian ships that had been cast away in their passage home, to the taking of the Galleons by the Dutch, and to the badness of their sales. They thought that to supply these deficiencies, it was only necessary to impose heavier duties on manufactures and artificers. But this burden, which could not have been supported by the workmen even when their number was considerable, grew intolerable when only few of them remained. They fled into Flanders and Italy, or continued in the country and quitted their profession. The silks of Valencia, and the fine wool of Andalusia and Castile, were no longer manufactured by the Spaniards,

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The treasury having no more manufacturers to oppress, now oppressed the farmers. The taxes levied upon agriculture were as ill judged as they were various and excessive. Besides general duties, there were what the financiers call extraordinary duties, which is a mode of levying money upon a particular class of citizens; a kind of tax unprofitable to the state, and ruinous to those who are taxed, and which tends only to enrich the person who has contrived it. These recourses proved inadequate to the urgent necessities of government, and the financiers were called upon to advance considerable sums. At this period, they became masters of the state, and were empowered to farm out the several parts of their lease. This introduced a multitude of agents, and with them numberless restraints and oppressions. The laws, which these rapacious men were allowed to enact, were only so many snares to seduce the honest and credulous. In process of time, they usurped the sovereign authority, and found means to elude the royal tribunals, to chuse judges for themselves, and to pay them. In short, they became judges in their own cause.

The owners of the lands that were oppressed by this tyranny, either threw up their estates, or neglected the improvement of them. That fertile peninsula, which, though subject to frequent droughts, still afforded subsistence to thirteen or fourteen millions of inhabitants before the discovery of America, and had formerly been the granary of Rome and all Italy, was soon overspread with thorns and briars. The pernicious custom of fixing the price of corn was then adopted; and public granaries were established in every province, which were consequently managed without either skill, care, or honesty. Besides, what advantage could be expected to arise from such precarious resources? How could it possibly enter into any one's thoughts, to lay restraints upon the price of corn, in order to increase the quantity of it; to raise the price of provisions, in order to make them cheaper; or to facilitate monopoly, in order to prevent it?

Nothing can vary more than the climate and air of Spain. In the southern parts the heat is excessive during the months of June, July, and August, and would be almost insupportable were it not for the cool breezes which blow off the mountains, but the remainder of the year is delightful and temperate. In the north, and near the sea-coast, the air in summer is much less sultry, and in winter very cold.

If the natural luxury of the soil in Spain were seconded by the industry of her inhabitants, it would be the most fruitful country in Europe. In many places it produces fruit almost
spon-

spontaneously, and formerly vast quantities of corn grew there, but at present there is a great scarcity of it, entirely owing to the want of tillage, and not, as some have asserted, to the barrenness of the soil: for, excepting some sandy deserts in the south, and the mountains in the north, it is exceeding rich, particularly in the plains and vallies.

The province of Andalusia is remarkable for a very fine breed of horses, esteemed the handsomest in Europe, and at the same time exceeding fleet and strong. The Spanish mules are very serviceable, and the asses of a prodigious size. The wild bulls of this kingdom have long been famous, and are chiefly bred in Andalusia. Chamois and other goats are found in Spain, as are stags and many species of deer, and vast quantities of game, but the only beasts of prey there are wolves. Here are great numbers of black cattle and sheep, the latter of which produce the finest wool in the world. [We have given an account of the sheep in Spain in a former volume.] The number of shepherds in Spain are computed to be about forty thousand, who move regularly with their flocks every summer from south to north, along the mountains, which yield a great variety of sweet herbs and plants, and return again towards the winter. During this progress, large quantities of salt are distributed among the sheep, and all possible care is taken both of their health and fleeces.

Most of the feathered race in Spain are birds of passage, but two of them are worthy of description, viz. the flamencos, and the sea-cock. The first is about the size of a stork, but in its form seems a compound of the duck and the swan; the body is white, and the wings are spotted with a beautiful scarlet. The colour of the sea-cock is blue, or scarlet and blue, extremely brilliant, with scarlet crests and feet; they fly very slow, are good to eat, and, if taken young, may be brought up tame. The tame fowl are of various kinds, and very fine; and at Gorga there is a particular breed of hens of a prodigious size.

Fish is very plenty in many of their lakes and rivers, and the port of Carthage, with some adjacent places, are noted for large shoals of herrings.

The Spanish wheat is esteemed the finest in Europe; barley is produced there in great quantities, and very good: it is the common food for the horses and mules, oats and hay being very scarce in that kingdom, and there is not much flax or hemp. Besides the fruits which are produced in England, Spain yields citrons, lemons, oranges, almonds, raisins, prunes, olives, dates, figs, chefnuts, pomegranates, and capers. Valencia is famous for the growth of lemons; and in the kingdom of Aragon

ragon the trees bear fruit three and often four times in a year. Grapes are cultivated in most parts with the greatest success, and produce some exceeding rich wines, among which are sack and sherry. Dr. Busching says, that the inhabitants of Malaga, and the neighbouring country, export wines and raisins to the amount of two hundred sixty-eight thousand seven hundred and fifty-nine pounds sterling, annually. Sugar-canes and saffron are cultivated in Granada, and the kingdom of Murcia abounds in mulberry-trees, for the sustenance of its silk-worms, which are said to produce two hundred thousand pounds worth of raw silk every year. The mountainous parts yield prodigious quantities of wild thyme, marjoram, and other aromatic herbs, which renders the taste of their kids and sheep, that feed on them, of a most delicate flavour. Villa Franca produces the herb escurzonera, esteemed by the Spaniards an antidote against all sorts of poisons, and a certain cure in the plague: likewise the herb eustracia, which being soaked in warm wine, and the eyes washed with it, is very beneficial to the sight. Great quantities of the plant esparto is found on the rocky lands, of which they make ropes and other cordage; and upon the banks of the river Guadiana there grows a very extraordinary shrub, called the laurel-rose from the resemblance which the flowers bear to a rose, but the leaves are of such a poisonous quality, that all animals die who happen to feed on them.

[To be continued.]

ART. II. *Modes of Agriculture recommended to the Gentlemen of Ireland.*

[From Mr. Young's Tour in Ireland. Continued from P. 207.]

F L A X C O U R S E.

- | | | |
|-------------|--|------------|
| 1. Turneps. | | 3. Clover. |
| 2. Flax. | | 4. Wheat. |

D I R E C T I O N S.

THIS for flax on light and dry soils, the turneps to be managed exactly as before directed, and the remarks on the tillage of the turnipland for barley are all applicable to flax, which requires the land to be very fine and friable; I would roll in the clover seed in the same manner, and the weeding and pulling the flax will assist its growth. Let the flax be saved and stacked like corn, threshed in the spring, and the process of watering and dressing gone through the same as in the common way. This husbandry is exceedingly profitable.

- | | | |
|-----------|--|------------|
| 1. Beans. | | 2. Flax. |
| | | 3. Clover. |

3. Clover.

4. Wheat.

This for strong soils. The bean land to be prepared for the flax exactly in the same manner as before directed for oats.

1. Potatoes.

3. Clover.

2. Flax.

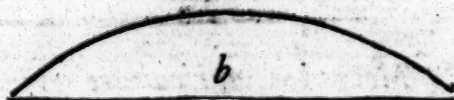
4. Wheat.

For any soils except the very strong ones. The potatoes to be managed exactly as before directed, only upon taking them up the land to be left till spring; but if wet, no water to be suffered on it in the winter. In the spring, to apply more or fewer ploughings, as will best ensure a fine friable surface to sow the flax in.

GENERAL OBSERVATIONS.

In very stoney soils, the implement called a shim cannot be used to any advantage; in which case the operations directed for it must be effected by extra hand-hoeings. By *land* I mean those beds formed in ploughing by the finishing open furrows: the space from furrow to furrow is the *land*.

In ploughing wet soils be attentive to get these lands gradually into a right shape, which is a direct segment of a circle. A large segment of a small circle raises the centers too high, and makes the sides too steep; but a small segment of a large circle is the proper form.



The segment *a* appears at once to be an improper shape for a broad land, but that of *b* is the right form; keeping wet soils in that shape very much corrects the natural disadvantages. Permitting the teams to go on to wet soils in wet weather, is a most mischievous practice; but it is much worse in the spring than in the autumn. In all these courses it is proper to remark, that keeping the fallow crops, that is, the turneps, beans and potatoes, absolutely free from all weeds, and in a loose friable order, is essential to success. It is not necessary only for those crops, but the successive ones depend entirely on this conduct. It is the principle of this husbandry to banish fallows, which are equally expensive and useless, but then it is absolutely necessary to be assiduous to the last degree in keeping these crops in the utmost perfection of management, not a shilling can be laid out on them that will not pay amply.

There

There are in the preceding courses several refinements and practices, which I not only approve, but have practised, but omitted here, as I do not think them likely to meet with the necessary attention in Ireland.

Laying LANDS to GRASS.

THERE is no part of husbandry in Ireland less understood than this branch, and yet where land is to be laid down, none is more important.

Begin according to the soil, with either turneps, beans, or potatoes, and manage them as prescribed in the preceding instructions. If the land has been long under a bad system, by which it has been exhausted and filled with noxious weeds, take a second crop managed exactly like the first, but one only to be manured. After this sow either barley, oats, or flax, according to the tenor of the preceding directions, but instead of clover-seed rolled in, harrow in the following seeds, with those spring crops:—Quantities for a plantation acre,

15lb. perennial red clover, called cow grass, (*trifolium alpestre*.)

12lb. of white clover, (*trifolium repens*.)

15lb. of narrow-leaved plantation, called rib grass, (*plantago lanceolata*.)

10lb. of yellow trefoil.

Which, if bought at the best hand, will not usually cost above twenty-five shillings. All the ploughings given for this end, must tend to reduce the surface to an exact level, but then a very correct attention must be used to dig open furrows, in order to convey away all water.

ART. III. *Observations on the benefit of Malt-Dust, as a manure for a stiff soil, with a relation of some experiments made to ascertain its virtues.*

[From the Museum Rusticum, vol. III. Page 277.]

FOR the benefit of your farming readers, says this gentleman, I shall communicate a few experiments I made some time since, in order to try the virtue of malt-dust as a manure for a crop of wheat.

I had often heard it offered, that malt-dust was much better suited, as a manure, to barley than wheat; for the latter lying a whole year in the ground, and the malt-dust being sown with it, the virtues of the manure were exhausted long before the

summer, when the corn principally wants nourishment ; being advanced in its growth, and served chiefly to make the wheat winter-proud.

Others, contradicting this assertion, said it was best for wheat, and made it appear, that it often caused very good crops of corn, particularly after a hard winter.

Being determined in my own mind to try some experiments, in order to determine this matter, I pitched upon a field of ten acres, which had borne a good crop of horse-beans ; after which it was sown with turneps, which being fed off, it was summer-fallowed, being intended for wheat.

The soil was a stiffish loam ; it was in good heart, and tolerably clean.

I divided this field by deep furrows into ten equal parts, each containing one acre, numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

The whole field, during the course of the fallowing, had four ploughings, which reduced it to a fine tilth.

When wheat seed-time came, I sowed number 1. broadcast, with three bushels of wheat, and ploughed it in, laying on no manure whatever.

Number 2. I sowed with the same quantity of wheat, after which I strewed over it ten quarters, or eighty bushels of malt-dust, and ploughed that and the seed in together.

Number 3. I sowed also with wheat in the same manner, except that I deferred strewing on the malt-dust, till the latter end of January.

Number 4. had a dressing of dung in the ordinary way, and was sowed with three bushels of wheat like the other parts.

Number 5. was dressed by sheep-folding, and was also in like manner sown with wheat.

Number 6. was sown with wheat in the same quantity ; and in February, after sowing, received a half-dressing of very rotten dung, which had been several times turned and mixed.

Number 7. after receiving a ploughing in the spring, was sown with ten pecks of barley, which was harrowed in, and no manure at all applied.

Number 8. was sown with barley, as above, but had ten quarters of malt-dust laid on it.

Number 9. had in the winter a good dressing of dung, and was in the spring sown with the same quantity of barley.

Number 10. was sown with barley, like number 8, only it had five instead of ten quarters of malt-dust laid on it.

It may be necessary, perhaps to observe, that all the pieces of wheat were sown the first week in October, and all the barley the second week in March.

Soon

Soon after Christmas I went to take a view of my wheat, when I found that the acre marked number 2. looked most forward and flourishing; though I must own there was in appearance but little difference between that and number 4.

The numbers 1, 3, and 6, neither of them looked so vigorous as those already noticed; and number 5. seemed rather thin on the land; the wheat plants were in good condition and healthy.

In May, I took another view of my wheat crops, and found number 1 tolerably clean, and promised well.

Number 2 gave me hopes of a large crop, and was surprisingly clear of weeds.

Number 3 was greatly improved since the laying on of the dressing of malt-dust.

Number 4. looked very vigorous and strong, but was very foul, having several sorts of weeds not to be met with in other parts of the land.

Number 5 was thin of plants, and they did not branch much; however, they still seemed healthy and strong.

Number 6 was, like number 3, greatly improved; but it was foul, and, what appeared strange to me, had many weeds of a nature quite different from those with which number 4 was infested, though the dung laid on both these parts was taken from the same heap.

I, at this time, also looked at my pieces sown with barley, when I found number 7 promising and clean.

Number 8 was forwarder, and flattered me with the prospect of a large crop.

Number 9 was forward and fine, but foul with weeds.

Number 10 bore much the same appearance as number 8, and promised as well.

At harvest, number 2 of the wheat was first fit to reap, after which succeeded number 4. The rest were ready nearly at the same time.

Of my barleys, number 8 and 10 were first ready to mow.

I suppose it is unnecessary to observe, that those crops which were clearest of weeds were the soonest fit for carrying.

I ordered these crops to be all laid separately; and as I was obliged, just after Michaelmas, to go up to London, about some particular business, I left orders with my bailiff, that they should all be separately threshed and dressed as early as might be in the winter.

The produce of the several crops was thus distinctly noted to me, for I had ordered that particular care should be taken not to mix one with the other, and my orders were, I found, on enquiry, punctually carried into execution.

	Bush.	Pecks.
Number 1. unmanured, yielded of wheat —	20	1
Number 2. manured with malt-dust when sown —	28	3
Number 3. manured with malt-dust after Christmas, by way of top-dressing — —	41	0
Number 4. manured with dung in the ordinary way	32	2
Number 5. folded with sheep — — —	29	3
Number 6. dressed with rotten dung in February	30	2
Number 7. unmanured, yielded of barley —	32	3
Number 8. manured with ten quarters of malt-dust when sown — — — —	48	0
Number 9. manured with dung in the winter —	40	2
Number 10. manured, when sown, with five quar- ters of malt-dust — — — —	44	0

I must, with your leave, trespass upon your reader's patience, till I make a few observations on the above state of the produce of my crop.

First, I conclude, that when malt-dust is used as a manure for wheat, it is best to lay it on by way of top-dressing after the corn is come up, as the crop of number 3, yielded above twelve bushels more than that of number 2. and I am apt to think that the virtue of the malt-dust laid on number 2. was exhausted before it could be of any essential service to the crop; whereas, in number 3, the manure began to yield forth its virtues just as the wheat plants began to be in want of a fresh supply of nourishment. It was also observable, that the grains of wheat, which grew on number 2, were thinner, and had less substance, than those of number 3, the grain of which was fine, plump, and heavy.

The produce of number 4 convinces me that malt-dust is, in many cases, a better manure for wheat than dung, not only as it gives a larger increase, but also because it does not stock the land with destructive and devouring weeds.

The wheat grown on number 5 was as fine as that of No. 3, but considerably less in quantity, as appears by the account.

I do not much approve of the method pursued in number 6, yet is it a good alternative, if the farmer happens to have too little dung to dress all his fallows.

I judge also malt-dust to be a very good and profitable manure for a barley crop; but the yield of number 10, being forty-four bushels, and of number 8, only forty-eight bushels, which last is not an increase in proportion to the additional quantity of manure laid on, I thence judge that eight quarters, or sixty-four bushels, of malt-dust, is the proper quantity to lay on an acre for a barley crop, and that at the time of sowing.

When

When I speak of malt-dust, I mean the kiln-dust, which falls from the malt in drying; as to the tail-dust, which falls through the screen whilst the malt is cleaning before it is put up in sacks, that may applied to a better use, being generally given to pigs, and often to cows, in which last case it makes them give a great deal of milk.

It has been suggested, that the virtue of malt-dust, as a manure, lasts only for one crop; but this is a mistake, for when this manure is laid on in January or February, a good crop of barley may be had after the wheat.

It (I mean malt-dust) is of a very warm nature: this has induced many farmers to think that it will burn a crop; and I will not answer for it but it might do so on a hot gravelly soil; but on clay land, or a stiff loam, it seldom or never does any damage: and indeed the only danger is a dry time ensuing after it is spread on the land, for the first shower of rain washes it in, and secures the crop from all hazard of being burnt.

Many of my acquaintance, besides myself, have found that malt-dust is for a stiff soil a better manure than dung; but the dispute among them was, whether it was most profitable to lay it on when the wheat was sown, or by way of top-dressing in January or February: however, since I made the above experiments, they are all converts to my opinion, and are determined in future always to dress their heavy wheat land with it after Christmas.

One thing more, in recommendation of this my favourite manure, let me add before I conclude, that nothing surpasses it when laid on cold grass grounds, to the amount of about eight quarters, or sixty bushels, on an acre, but not less.

Such as have not seen its effects in this way applied, would be surpris'd at the large increase of sweet feed which it occasions: in short, whoever finds it necessary to dress such land, and can get malt-dust in sufficient quantity, will do well to use it, as they will be puzzled to find any thing in the extensive circle of manures better adapted to the purpose.

ART. V. *Of Drought, its Nature and Effects.*

[Continued from page 215.]

WHEN the summer months, beside being extremely hot, are also extremely dry, the farmer's crop never fails to suffer greatly, unless well assisted by art. In the hottest countries there are the largest dews; and in the same manner, in our hottest seasons, the greatest quantity of Moisture is exhaled

haled from the earth, and serves to refresh the herbs again in its fall; but it is not enough to preserve them in vigour. Nature intended for them the assistance of rains, and when these are withheld, the farmer must supply the defect by his industry.

The products of open field land are most exposed to the damage that is sustained from drought, and corn more than pasturage: yet none are exempt. In seasons but slightly drouthy the open field corn suffers, and the farmer reaps but a poor harvest; and in the extremum of this unfavourable weather there is little grass for the cattle.

The flock thus suffers by means of scarcity of food; and commonly there is great want of water for them at the same time. These, added to the natural disorder of their bodies from the heat itself, are sources of many disorders; so that it is a very important concern to the farmer to make the best provision against the damage that he can, and to do all he can to remedy it when it happens.

The method of preventing the effects of drought is pointed out by nature: indeed the husbandman's whole practice is so, if he would but follow her steps. Let him ride about the country in the extremums of a drouthy season, and observe the effects of it on lands that lie differently. We have observed that it is in open fields the effect is worst; and in the others he will see the damage less as the enclosure is better. This may shew him that the proper guard against the accident of drought, is by keeping up his fences, and planting them well with trees. This we recommend very warmly upon the consideration of its advantage in respect of wood, besides this very great one. The effect of the warm sun upon plants of the same kind in open ground, is ten times greater to do them harm, than in such a one as is well enclosed: its heat is greater, but that is not all. Drouthy seasons are always attended with burning winds: these parch up the plants, which the heat only faded; and against these three joint causes of mischief, no common plant can well stand. 1. The heat dissipates and evaporates a great quantity of the juices. 2. There is no recruit from showers for a continuance of time, and the evaporation is all the while daily repeated; and, 3dly, The dry winds follow, to shrivel up what the sun had faded. These are natural consequences; the leaves wither and droop, no moisture comes to refresh them, and winds parch them up: they must fall off. From the nature and uses of leaves on plants, it is plain the loss of them must be very destructive to the whole.

We have laid down the cause of the mischief plants receive from drought, to shew the farmer the propriety and necessity

of what we are proposing by way of remedy. The heat and drought do their damage but partially and ineffectually, unless the winds come into their assistance. A plant may droop and hang its leaves from day to day for a considerable time, and yet upon a small shower it will recover: but when a parching wind blows over it upon the heat, in that drooping condition the leaves fall, and then no rain recovers it to any purpose.

Now the exposure to these drying winds appears to be the thing that compleats the destruction of the plants; therefore the farmer's business is to guard against that. The elements will not obey his pleasure, but he may defend his crop from this mischief of winds. The sun will dart its rays in spite of all his caution; and there is no art by which he can make the clouds drop the treasures of water: to these therefore he must submit; but the mischief of these is but partial and ineffectual without the winds that follow: and though he cannot prevent these, he can guard his crop against them. To this purpose, let him thicken his hedges at the bottom, and plant trees in abundance, that will grow to a height, and almost meet by their branches all the way up. This will be a defence not only against the winds, but in some measure against the sun. The thickness at the lower part will perfectly well break the force of the former, and the large shade spread over the field for a great part of the day, by one or other of the hedges, will defend the growth against the latter. The plants thus sheltered will enjoy a state of the air by many degrees cooler, than if the sun had its full effect upon them: and there is another advantage too little considered, which is, that the number of trees will, by the great quantity of watery matter they perspire, render the air less scorching.

The profit of wood will also recommend this method of shelter, for it is very considerable: on all accounts, we advise the farmer to fall into the practice, but still within the guidance of moderation; tho' we advise him to thicken all his hedges about those places, where from the situation drought is like to be most destructive, yet we mean this should be done in a prudent manner. The larger the field the loftier should be the trees, for the largest, tall elms, and other trees of the like kind, are to be indulged in spreading out their side branches, provided they do not over-hang the ground too much, or starve the head.

For this purpose we shall advise the farmer, in some degree, to imitate the practice of the gardener in his cutting of those trees, which he means should grow fan fashion. Let him cut off the boughs of these elms and other trees that grow toward one or the other field, and encourage such as run parallel with the

the course of the hedge. This will have a great advantage: the side boughs will thicken, and will be a better shelter and defence, and the growth will at the same time suffer nothing from their overshadowing or drippings. There must be always a fine leading shoot left for the top, to carry up each tree in height, while it thus spreading breadthwise; and with all the advantage there will be a great deal of beauty. This is a thing not to be considered by the husbandman, at the expence of convenience, but when it falls in with that, 'tis certainly worth regard. The judicious eye abhors the gardener's practice of clipping up trees in this manner in strait lines, leaves and all, till they resemble a wall, because it is stiff, formal, and out of nature; but what we advise the farmer to do, which is no more than cutting away such large boughs as stand strait forward, will have a most pleasing effect. There will arise from it a flatness and breadth sufficient to please the eye, though not so formal as to offend it; and the remaining branches will give the whole an air of perfect nature: such trees will look only as if they had chanced to have grown very prettily. Every field will thus have the aspect of a garden, only more natural and beautiful.

ART. V. *A remedy for the Poisonous Bite of a Mad Dog.*

THERE is nothing, perhaps, so much to be dreaded as the bite of a mad dog, for the poison is so very infectious and penetrating, that it takes effect thro' the cloaths, without fetching blood; by the breath of the animal drawn into the lungs; by a touch of the tooth, if recent; and applying it to the lips or tongue, when it has been long dried; by handling the wound, or instrument, which was the death of the animal; or by handling things which have been infected by any of the former means.

To prevent the fatal consequences that too often attend these accidents, the following (which is the famous East-India Specific) is recommended to be given in a glass of brandy.

Take native cinnabar, and factitious cinnabar, of each 24 grains, musk 16 grains, make it into a powder, and give it in one dose, as it was given in the following case:

A poor man was bit by a mad dog, and after using divers medicines, was invaded with a strong hydrophobia, and being confined in Greenwich, was treated with the above medicine as follows: his teeth being forced asunder with a knife, he took one dose; 3 hours after the hydrophobic symptoms were abated; he swallowed a second dose, which by next morning almost totally recovered him; he took a third dose in a fortnight, a fourth in a month after, and never felt more of his complaint.

ART. VI. Explanation of the FESTIVALS and FASTS, as observed by the Christian Church: and also of other remarkable Days throughout the Year.

J A N U A R Y.

1. **C**IRCUMCISION, or New-year's-day, a festival in memory of our Saviour's being circumcised.

5. Old Christmas Day.

6. *Epiphany*, a Festival in commemoration of our Saviour's being made manifest to the Gentiles, and of the wise men going to him with presents: this is commonly called Twelfth-day, because observed on the 12th after our Saviour's birth.

25. *St. Paul's Conversion* to the Christian religion was in the year of Christ 36. He is not commemorated as the other Apostles are, by death or martyrdom, but on account of his *miraculous conversion*.

30. King Charles 1st was martyr'd in 1649.

F E B R U A R Y.

2. *Purification of the Virgin Mary*, called *Candlemas-day*, from an old custom of consecrating candles for sacred use for the ensuing year.

Septuagesima, which signifies seventy, is the third Sunday before Lent; so called, because it is about seventy days before Easter.

Sexagesima, which signifies sixty, is the second Sunday before Lent; so called, because about sixty days before Easter.

Quinquagesima; *Shrove-Sunday* or *Shrovetide*; a time of confession, formerly observed, in order to a more strict keeping the ensuing Lent with *fasting* and *humiliation*.

Shrove-Tuesday is the day before Lent, which the Catholics call the *Carnival*, when they make merry, and take leave of flesh meat. — *Hare-hunting goes out*.

Ash-Wednesday is the first day of Lent: a set time for fasting 40 days before Easter. — It was called *Ash-Wednesday*, from an ancient custom in the church, of penitents presenting themselves before the bishop clothed with sackcloth, and, when rising from prayers, had ashes thrown on them, and their heads covered with sackcloth.

24. *St. Matthias* was an apostle, but not of the twelve: he was a diligent attendant on our Saviour, and was murdered in Cappadocia.

Ember Weeks are of great antiquity: there are four in number, but only three days in these weeks are observed, viz. Wednesday, Friday, and Saturday next after the *First Sunday in Lent*, after *Whit-Sunday*, *Holy-Rood*, and Dec. 13, being *St. Lucy's-day*.

M A R C H.

1. *St. David* was uncle to the great King Arthur: he was made bishop of Caerleon in Wales, from which see he was afterwards removed to Menevia, which has ever since been called *St. David's*.

17. *St. Patrick* was an Apostle of Ireland, and second bishop of that country.

18. *Edward*, surnamed the *Martyr*, was descended from the West Saxon kings, and son of *Edgar*: he came to the crown in 975, at twelve years old, but did not enjoy it long; for paying a visit to *Elfrida*, his mother-in-law, at *Corfe-castle*, in *Dorsetshire*, he was by her orders stabbed in the back, while he was drinking a cup of wine, to make way for her son *Ethelred* his half-brother.

25. *Annunciation*, or message to the *Virgin Mary*, concerning her being to bring forth the *Messiah*, our Lord and Saviour; is commonly called *Lady-day*, and is the first quarter-day.

Palm Sunday, (the Sunday before Easter) so called in memory of our Saviour's entry into *Jerusalem*, when the multitude strewed the ways with palm branches.

A P R I L.

Maunday Thursday, or *Mandate Thursday*, so called from the commandment our Saviour gave his apostles, to commemorate him in the Lord's Supper.

Good Friday is a fast in memory of *Christ's* passion, and always observed on the Friday before *Easter Sunday*; it was called *Good*, from the blessed and good effects of our Saviour's sufferings.

Easter is a festival in memory of our Saviour's resurrection.

Low-Sunday is so called, because it falls the next after, or lower than *Easter*.

23. *St. George*, of *Cappadocia*, was the patron of *England*; he suffered for the sake of the Christian religion in 290, under the Emperor *Dioclesian*.

25. *St. Mark the Evangelist* wrote the history of our Saviour, and was the first bishop of *Alexandria*, where he planted the Christian church.

M A Y.

1. *St. Philip* was a fisherman, and one of the twelve apostles: he preached the gospel in *Higher Asia*, and at length was crucified at *Hierapolis*.—*St. James* the Less, or Younger, a fuller by profession, was also one of the apostles, and after the resurrection was made bishop of *Jerusalem*. *Josephus* mentions him as the brother of our Saviour.

3. Invention or finding of the Cross, commonly called *Holy Rood*, a festival, but now celebrated only by the church of *Rome*.

6. *St. John*, ante *Portam Latinam*, in memory of *St. John* the Evangelist's miraculous deliverance from the persecution of *Domitian*, who ordered him to be burnt in oil, set on fire before the gate called *Porta Latina* at *Rome*.

Rogation Sunday is the fifth after *Easter*: on this and the three following days, extraordinary prayers were offered up. *Rogation Days* are *Sunday*, *Monday*, *Tuesday*, and *Wednesday*, before *Holy Thursday*.

The

The *Ascension*, commonly called Holy Thursday, because so holy a work as our Saviour's ascension into heaven was done on this day, in sight of his apostles, and was the consummation of all he did and taught upon earth. On this day it is usual for the curates and churchwardens, &c. to perambulate the bounds of their parishes.

Whit-Sunday, or *Pentecost*, is a solemn festival, in memory of the descent of the Holy Ghost on the Apostles and other Christians, in the shape of fiery tongues.

29. An annual festival, in memory of the Restoration of K. Charles II. on the 29th of May, after twelve years exile.

J U N E.

Trinity Sunday is a festival in honour of the Holy and Undivided Trinity: its original institution is reckoned to be about the year of Christ 800.

11. *St. Barnabas* was one of the 70 disciples, who sold all and gave it to the poor.

24. *Nativity of John the Baptist*; his memory is celebrated, because he was the fore-runner of our Saviour: he was imprisoned by Herod, and by the arts of Herod's wife was at length beheaded.

24. *Midsummer Day* is kept as a festival; Second quarter-day.

29. *St. Paul* and *St. Peter* were joint operators, under our Saviour, in the conversion of the world. *St. Peter* undertook the Jews, and *St. Paul* the Gentiles, and were both crucified at Rome.

J U L Y.

2. *Visitation of the Virgin Mary*, a festival instituted by Pope Urban VI. in memory of her journey into the mountains of Judæa to visit the mother of *St. John*.

25. *St. James* the Great or Elder, was brother to *St. John*: he taught the gospel, and was martyr'd by the sword, by Herod: he was the first martyr of all the apostles.

A U G U S T.

1. *Lammas Day*, from a Saxon word signifying *Loafmass*; for it was customary among the Saxons, to offer up an oblation of loaves of new wheat on this day, as the first-fruits of corn.

24. *St. Bartholomew* was one of the twelve apostles, of whom our Saviour said, "Behold an Israelite in whom is no guile." He was slay'd alive, and crucified, after having preached the gospel in the Indies, and other parts.

29. *St. John the Baptist* beheaded; an ancient festival, formerly called the feast of gathering up *St. John the Baptist's* reliques.

S E P T E M B E R.

1. *Season commences for killing game.*

14. *Holy Cross* or *Holy Rood*, was first observed in the year 615, on account of the King of Persia, plundering Jerusalem, and taking away a piece of the cross, left there by the Empress Helena.

Beak-Hunting goes on.

I 2

21. *St. Matthew*

21. *St. Matthew*, the last of the apostles, was a toll-gatherer at Rome, but afterwards became a disciple, and wrote the Gospel of Christ.

29. *Michaelmas* (the third quarter-day) is a festival in honour of St. Michael, prince of the heavenly host, and in thanksgivings to God for the benefits we received, by the ministry of the holy angels.

Harvest-Hunting comes in.

O C T O B E R.

18. *St. Luke*, one of the four Evangelists, was a physician at Antioch. He wrote the Gospel of Christ and the Acts of the Apostles, in the time of Nero, and the 61st year of our Saviour. He is said to have suffered martyrdom at Ephesus.

25. *Crispinus* and *Crispianus* were brethren, born at Rome, whence they travelled into France in 303, to propagate the gospel of Christ, and for their maintenance followed the profession of shoe-making.

28. *St. Simon* and *St. Jude* were of the twelve apostles; the former was crucified in the time of Trajan, and the latter was murdered in the reign of Agbarus.

N O V E M B E R.

1. *All Saints*, commonly called *Allhallantide*, is a festival in honour and remembrance of all the saints.

5. *Guns powder Treason* is a festival for the deliverance of King James I. and his parliament, by the discovery of a plot to blow up the parliament-house, while the King, Lords, and Commons, were sitting, in 1605.

30. *St. Andrew*, an indigent fisherman, and one of the twelve apostles, was crucified in the reign of Vespasian.

D E C E M B E R.

1. *Advent* are four Sundays appointed for a solemn preparation for the great feast of the Nativity of our Saviour.

21. *St. Thomas*, who was also called *Didymus*, was one of the twelve apostles; but disbelieved the resurrection, till he had an interview with our Saviour, and was convinced.

25. *Christmas-day* is a grand festival of the Christian church, in memory of the incarnation and nativity, or birth, of our Saviour.

27. *St. Stephen* was the proto or first martyr. He was one of the 70 disciples, a man full of faith and the Holy Ghost; for which he was stoned to death, and prayed for his murderers in the very act.

27. *St. John the Evangelist* was a Galilean by birth, the youngest of all the apostles, whom Jesus had a particular regard for, surnamed the Divine.

28. *Innocents-day*, by some called *Childermas-day*, that is, the massacre of the children of Bethlehem; is a festival in memory of King Herod, of Judea's cruelty, in ordering the children, from two years old and under, to be put to death.

[The solemnization of marriage is forbidden from the first Sunday of Advent till after Twelfth Day, and from the beginning of Lent till Low Sunday.]

A Compleat

ART. VII. A Compleat GARDENER's CALENDAR,
For every MONTH in the YEAR.

J A N U A R Y.

WORK *to be done in the* KITCHEN GARDEN.

IF the ground be hard, carry in Manures; but if the weather be open, trench the ground where it is not occupied, and lay it in ridges, to be sweeten'd when the frost comes.

Dig the borders for planting endive, mixing a little sand with the mould; lay the earth rounding, to carry off the water, and plant the roots at 15 inches distance, taking care to remove a good ball of earth with each root, and to gather the mould in hills about them.

The endive planted out at the beginning of winter, will now be fit for blanching, which is done by burying the strongest plants almost to the tops of their leaves, in sloping trenches.

Sow radishes on a bed exposed to the sun, with carrots or spinage among them. Sow them pretty thick, on sifted mould, and rake them lightly into the ground; keep them free from weeds, and thin them as they grow up.

Towards the end of this month, if the weather be warm, parslley may be sown in drills, about half an inch deep, and it will come up in about six weeks. The small hemlock being very easily mistaken for the common parslley, we would recommend the cultivation of the curled parslley, which has a prettier appearance, is of the same use, and treated exactly in the same manner.

Sow Spanish, Sandwich, and Windsor beans; the large sorts at four inches distance, and in rows a yard asunder.

Sow hotspur pease; put fresh earth to your sage, thyme, and other sweet herbs.

NURSERY, FRUIT, and FLOWER GARDENS.

Transplant young fruit trees and hardy shrubs; prune vines, honey-suckles, roses, and other flowering shrubs; and cut all dead branches off fruit trees.

Plant cuttings of gooseberries and currants, of the last summer's growth; they should be from 10 to 15 inches long, and buried half-way in the earth, on a shady border. Plant quicksets, and cleanse trees from moss.

Secure your choice flowers from the weather by hoops or mats, and cover the leaves of seedlings with litter or pease straw.

Plant anemonies, ranunculuses, tulips, jonquils, narcissuses, hyacinths, crocuses, and other bulbous-rooted flowers; the three first of these on rounded beds, and the others on borders.—All hardy shrubs may be removed this month.

Uncover the roots of trees, and cover with dung the roots of new-planted trees,

FEBRUARY.

WORK *to be done in the* KITCHEN GARDEN.

CONTINUE to sow the articles directed for last month; sow also cabbages for autumn use, and savoy seeds for winter, which will cabbage in October.

At the end of the month, cauliflowers may be transplanted, if the weather be mild, and more seed may be sown on hot-beds.

Pease may be sown in rows twelve inches apart, and a succession should be kept up by putting fresh quantities into the ground every three weeks. The hotspur is the best for early crops.

Sow beans, marygold, aniseed, radishes, carrots, garlick, &c.

Prepare a bed of fine earth, for the seeds of celery; sow them thin, and cover them lightly with thin earth.

This is the best time for sowing the coss and Silesia lettuces, which should be scattered pretty thick on the ground, and raked in lightly. If the lettuces that have stood the winter are too thick, draw some of them out, with which you may plant a fresh bed.

Sow parsnips and beets on light soil, the end of this month.

Sow onions for fallads, and continue sowing them every three weeks during spring, on good ground, not too wet.

To propagate horse-radish, bury the off-sets that arise from the main root fifteen inches deep, and six inches asunder.

NURSERY, FRUIT, *and* FLOWER GARDENS.

Plant cuttings of hardy shrubs, and lay down the branches of exotic trees and shrubs.

Sow kernels and fruit stones, and the seeds of berries of hardy forest trees and shrubs.

Finish transplanting the flowering shrubs this month.

Remove grafts of former year's grafting. Cut and lay quick-sets. Vines may be planted the beginning of this month, and fruit that grows in bunches.

Set osiers, willows, and other aquaticks. Rub moss off trees after rain. Cut off caterpillars from quicks and trees, and burn them.

This is the season to reduce oranges, lemons, and myrtles, into a regular form. Their heads may be cut close, by which means new shoots will break forth of the old wood, and form the head required. They should then be shifted into the beds of fine fresh earth, reserving a good ball of the old earth to each root.

Polyanthuses and all early flowers may be planted, and the seeds of others sown where the plants may remain when grown up.

Towards the middle of this month, hot-beds may be made for raising annual plants, as Balsams, African Marigolds, &c. &c.—Sow them on the surface of the earth, separately, covering them with fine dry mould, and when they come up, water them occasionally; in warm weather give them air, but cover them at nights.

Sow the seeds of Polyanthuses and Auriculas, in boxes filled with light rich earth, and set them on a warm spot, defended from the north, and open to the morning and mid-day sun.

MARCH.

M A R C H.

WORK to be done in the KITCHEN GARDEN.

ALL works in the garden directed to be done last month, must be finished in this: At the beginning of this month, sow Thyme, Hyssop, Fennel, and all herbs of that kind; the aromatic herbs, such as Sage, Rosemary, Lavender, Thyme, &c. are also propagated by cuttings, or suckers from old roots.

Sow Lettuce Seeds on rich ground, in an open situation, and continue sowing every month for a succession during the summer. Radishes should be also sown in open pots, but the soil should be rather moister than for Lettuces.

Continue sowing Beans and Pease, and draw the earth to the stems of such as are grown up. Sow Oats, Barley, and all sorts of grass seeds.

Attend the Hot-beds carefully, and see that they maintain a proper degree of heat. Give the plants fresh air occasionally, and water them gently in a mild sunny day.

Savoy seed, for a crop at the end of autumn, must now be sown, and small fallading, for summer use.

Spring Quarter begins on the 19th of March, near midnight.

NURSERY, FRUIT, and FLOWER GARDENS.

Vines, from shoots of last summer's growth, should now be planted; let them be about 16 inches long, with a knot of the former year's wood cut smooth; plant them so deep in the earth, as to leave only one eye or bud to be seen, and that level with the surface of the earth.

Sow the seeds of Oranges and Lemons; cover them half an inch with good earth, in middle-sized pots, and then place the pots in a hot-bed; water them afterwards at discretion.

Perennial and biennial flowers may be sown any time this month. Sow the large seeds in holes or drills half an inch deep; and the small ones lightly covered with earth.

Plant Anemonies and Ranunculuses for a latter blow in May or June, but they must be often watered after the plants appear.

Keep the Auriculas free from weeds and decayed leaves; give them gentle waterings; but don't suffer them to be exposed to cold winds or frost. Be careful also in attending the flower buds of Tulips, Hyacinths, Ranunculuses, &c. and cover them every night in bad weather; but give them fresh air in the day, and if moderate showers of rain should come, let them be kept open to receive them.

Transplant the layers of Carnations into large pots, and after taking away the dead leaves from those planted last autumn, remove the earth as much as possible without hurting the roots, and fill them up with fresh light mould.

Evergreens should now be transplanted; but care should be taken to plant them immediately after they are taken up.

All sorts of grafting may be done this month. Prune Nectarines, Peaches, and Apricots. Continue to set willows and other aquatics.

APRIL.

WORK *to be done in the* KITCHEN GARDEN.

WITH the farmer and gardener this is the busiest month in the whole year; for now whatsoever you have a mind to plant or sow, the earth is fit to receive. Plant Asparagus at the beginning of the month. The ground to be trenched, and rotten dung buried so as to lie six inches below the surface. Then about five inches deep set the plants, (of one year's growth) in rows twelve inches distant from each other.

Carrots and Parsnips may now be sown with success. Hoe carrots, radishes, onions, &c.

Sow Windsor and French Beans in drills, five inches apart; the last in dry weather, or they will rot in the ground; continue sowing every three weeks, till July.

Transplant the Coss and Silesia Lettuces, upon good ground, mixed with rotten dung.

Separate the layers of artichokes, plant three of them in one hole.

Sow Cabbage and Savoy seed for winter; draw the earth to the stems of Cauliflowers; sow turnips, hoe and thin those that are up.

Continue to sow Beans. None excel the White Blossom and Magazan for eating. The long-podded Bean, a remarkable great bearer, should be sown a yard between the rows.

Plant Garden Beans, Rouncival, and other large Peas, to succeed other crops. Plant slips of Sage, Rue, Rosemary, Lavender, &c.

Sow Cabbage Lettuce, and all sorts of salad herbs, and Spinage in moist places for the last time. As this is a season, when weeds begin to seed, the gardener must be very diligent to keep them under, and destroy them.

NURSERY, FRUIT, *and* FLOWER GARDENS.

Finish sowing the seeds of trees and shrubs.

Replace the clay carefully, if any be found dropt from the grafts; and the latest kinds of every sort of fruit trees may still be grafted.

Remove Orange, Lemon, Citron, Myrtle, and other trees, into larger pots, if necessary; and refresh those plants that require it with new mould. Clean the leaves with a sponge.

As this is a season for blowing of Auriculas, care should be taken to preserve their mealy dust, in which their beauty consists, by keeping the flowers from high winds and rain. Off-sets may likewise be taken from the old roots, and planted singly in pots, watering them moderately.

To preserve the bloom of Hyacinths, Tulips, Ranunculuses, and Anemonies, guard them from heavy rains, high winds, and hot sun.

Transplant the tender annual plants sown in February, into a new hot-bed, with a ball of earth on their roots, and shade the glasses of the frame with a mat, till they have taken root.

The hardiest kind of annuals may likewise be transplanted into slight hot-beds in the same manner.

MAY,

M · A · Y.

WORK *to be done in the* KITCHEN GARDEN.

EARTH up the early Cabbages, gather the leaves of the plant together, and tie them with strong bafs, but not too tight.— This will make their hearts tender, and whiter.

Plant the rest of this Cauliflowers raised this spring from seed, and sow the seed of last year to flower in October.

Sow the seeds of Brocoli, of which the purple and the white sorts are the best; and when the plants shoot out eight leaves, they should be transplanted into a good light soil.

Carrots and Turnips, for the table in July, must now be sown.

Thin and weed your Turnips, Carrots, and Onions.

Preserve a proper degree of heat in your Melon beds, and water your Cucumbers moderately, at least twice a week, at three in the afternoon, giving them air every fine day.

Sow Radishes, Lettuces, and small Sallading, at different times.

Sow Cucumbers in the natural ground, as also Purslane and Cabbages; sow Pease and Beans in a moist soil for a latter crop; plant Kidney-Beans for a second crop, and transplant Celery into drills.

Lavender, Sage, Thyme, and all Aromatic Plants, are now propagated from slips, suckers, and cuttings, planted in a shady place, and watered in dry weather.

Sow Buck-wheat and latter Pease.

NURSERY, FRUIT, *and* FLOWER GARDENS.

Evergreens, and other shrubs, may be propagated by layers from the shoots of the same year; fasten them with strong pegs in the earth, and cover them with mould two or three inches deep, giving them moderate warmth.

Take off the clay from the grafts, loosen the bandages, and rub off all shoots from the stock.

If the weather be dry, water all young trees & shrubs in the evening.

Prune the bearing shoots of Vines to three eyes above the fruit, observing to prune just above an eye. Apple and Pear trees may also be pruned this month, which makes the fruit both larger and finer.

Myrtles, Jessamines, and other shrubs of the like kind, may now be propagated by layers, leaving four inches of the top out of the earth.

Take up the Tulips which have done blowing, and, cutting off their seed-pods, lay the roots to dry and harden, and then preserve them in bags to be planted in November.

To assist Carnations in their growth and beauty, nip off all decayed leaves, earth up the pots, and give them water every day.

The hardy annual plants, sown in hot-beds, may now be planted in the natural ground.

Sow Stock July-flowers, Wall-flowers, Carnations, Pinks, and such perennial and biennial flowers, till the 12th of this month.

Weed young Quicksets and Ivy: fallow your ground; look well to your sheep, if the weather proves wet, for fear of a rot.

J U N E.

WORK *to be done in the* KITCHEN GARDEN.

REFRESH your plants with moderate watering, which is best done in the evening in this and in the next month.

Beans and Pease, sown at this time will yield a crop in September. Steep them in pond water eight or ten hours before sowing.

Sow Kidney or French Beans, Radishes, Endive, and Lettuces for cabbaging.

Cut no Asparagus after the 8th day of this month.

Gather Sage, Mint, Lavender, Rosemary, &c. for drying. Let them dry leisurely in a shady place.

Brocoli should now be transplanted into mellow ground, and more seed sown, for a supply in winter.

Transplant Celery and Lettuces, and sow Lettuce seed for a supply in August and September.

Cucumbers ought to be uncovered all day, unless it rains; and the frame raised for the vines to spread under it.

Sow a full crop of Turnips for autumn use, and transplant Cabbage and Savoy plants for winter.

Sow all sorts of small fallad herbs every three or four days.

Keep your garden free from all sorts of weeds, for they spoil whatever they are near. Weed your corn, and sow rape, cole-seed, and turnip-feed.

The summer quarter begins the 20th of June, near 10 at night.

NURSERY, FRUIT, and FLOWER GARDENS.

About the 18th of this month comes on the season for inoculating Apricots, early Peaches, and Nectarines, upon Plumb-stocks, which is done by placing the bud of the tree between the bark and wood of the stock, so that it will soon become united with both.

Bring the Green-house plants into the air, and clear them of decayed leaves, &c. and water them frequently.

Myrtle, and other exotic shrubs, may now be increased by cuttings planted in light earth.

Take up Tulips, Jonquils, Narcissuses, and other bulbous roots that have done blowing, and preserve them in the manner directed for Tulips last month. The off-sets should be separated, and may be planted immediately in fresh ground.

Transplant Carnations, Sweet-Williams, Stock-July flowers, &c. sown in April, six inches distant.

About the middle of this month, Carnations begin to break their pods. They may be assisted in their opening, in order to a more regular spreading of the petals, by cutting the pod a little way in several places, where nature seems to want strength. When they begin to blow, they should be kept from heavy rains, and very hot sun.

Trim the bottoms of Africas, French Marygolds, &c. and cut off the luxuriant shoots of flowering Shrubs and Evergreens.

Fail not to destroy your weeds, otherwise they will get the upper-hand, and destroy your flowers.

JULY.

J U L Y.

WORK *to be done in the* KITCHEN GARDEN.

CLEAR away the stalks of all things that have done bearing, as Cabbages, Cauliflowers, Beans, Pease, &c.

To bring Artichokes to a fine head, cut off all the suckers from the sides of the stems.

Sow turnips, Onions, and Carrots, for winter use; also Coleworts and prickly-seeded Winter Spinage, at the latter end of the month.

Cauliflowers for autumn must be planted out for good, two feet asunder; transplant Brocoli for a full crop, and sow Brocoli-seed on a rich shady spot; also Onions, Cresses, Radishes, and all sorts of small fallading.

Melons now begin to ripen; but they must be left chiefly to the care of nature, for water will rob them of their flavour.

Cucumber plants, which are now in full bearing, should be watered three times a week, and kept clear of weeds.

This is the proper time for gathering the flowers of Lavender, Chamomile, and Marygolds; also Mint, Balm, &c. which, when dried in the shade and sun, should be hung up in paper bags.

Herbs for distillation should also now be gathered.

Keep your garden clean from weeds, and do not neglect to weed in this month your new-planted quicks.

NURSERY, FRUIT, *and* FLOWER GARDENS.

Bud or inoculate Plumbs, Pears, and Cherries, upon stocks raised from the stones; and Pears upon Quince and Pear-stocks raised from kernels.

Transplant seedling Firs and Pines, when the seed-bed is too much crouded.

The Pine-Apples beginning now to ripen, will require more fresh air; but water with discretion, lest their flavour be spoiled.

Carnations are this month in their prime, and require great care to prevent their opening irregularly, and to preserve their bloom. Strip off the under shoots, if you would have a large flower at top, and keep them sheltered from the sun and weather, watering them once in 48 hours if they require it.

Annuals may now be removed from the seed and nursery beds.

The seedling Auriculas and Polyanthus should be planted into a good soil, well shaded; also all other seedlings of the biennial and perennial kinds.

Take up Crown Imperials, and all other bulbous roots whose grass is withered, and manage them as directed for Tulips, &c.

Trim flowering shrubs and evergreens, clip hedges and box edgings, keep the gravel walks neat, mow the grass walks, and cut and sweep away all decayed herbs and flowers.

WORK *to be done in the* KITCHEN GARDEN.

SOW the Sugar-loaf and early Battersea Cabbages for a spring crop; also any of the late kinds of Cabbages.

Sow Cauliflowers, Spinage, Onions, Carrots, Cabbages, Coleworts, Lettuce, Cresses, Chervil, and Corn Salad.

Transplant Brocoli into the ground, there to remain for flowering. Plant slips of Savory, Thyme, Sage, Hyssop, Rosemary, Lavender Mastic, and other aromatic plants.

Continue to sow Rape, Radish, Mustard, Cresses, and Turnip-seed every week; they will now soon grow large enough for use.

Salmon and Scarlet Radishes may now be sown, and they will be fit to draw in the middle of September.

Uplift Endive, that is full grown, in a dry day, and transplant the Seedling plants twelve inches apart. 1

Cut down the decayed stems of Hyssop, and other aromatic plants, which will strengthen their roots, and cause them to shoot out afresh.

This being the season for pickling Cucumbers, they should be well watered in dry weather, three or four times a week, and gathered at proper sizes three times a week.

Transplant Savoy, 20 inches distant, for the Christmas table.

NURSERY, FRUIT, *and* FLOWER GARDENS.

Budding may still be performed before the 15th of this month, and untie the bafs a little about the buds lately put in.

Weed and water Seedlings, cut vigorous shoots off close in Forest Trees, and trim the Evergreens.

Observe the directions given at the end of July, and finish the month with digging such borders where the plants have done flowering, to be ready to receive your plants and roots next month.

Shift Green-house plants into larger pots, with earth on their roots; propagate Aloes by slips or off-sets, set singly in small pots of very light dry compost.

Complete the transplanting of seedling Polyanthes and Auriculas, and sow their seed in large pots of light earth.

In the same manner sow the seeds of Ranunculuses, Anemonies, and Spring Cyclamens: And, after the 20th day, the seeds of Tulips, Hyacinths, and other bulbous roots, in boxes 15 inches broad, and 12 deep.

The fibrous-rooted Perennials should now be propagated by slipping and parting the roots; cutting away the cankered parts, and planting such pieces as have a sufficient quantity of root to preserve their vegetation, in pots of fresh compost.

This month furnishes most of the Flower Seeds. Gather them when quite ripe, in a dry day, and expose them on a mat to the sun till they are well hardened, then rub them out, and preserve them in paper bags.

In dry weather, water your annual and perennial plants moderately; trim your shrubs, and do other work recommended in July.

SEPTEMBER.

S E P T E M B E R.

WORK to be done in the KITCHEN GARDEN.

TRANSPLANT Cabbages and Cauliflowers sown last month into the nursery bed, for an early crop next summer.

Coleworts, sown in July, must now be planted out in rows.

Plant also the last crop of Brocoli in rich soil; Celery for spring use, and Endive to serve till March.

Hoe and thin Spinage and Turnips. Plant out Lettuces sown in August, and sow more seed to be pricked out in frames in October.

This is the time to prepare beds for Mushrooms. Lay good fresh dung in a heap, for a fortnight or three weeks, till the heat is over, and in the mean time look for the spawn in decayed hot-beds, old dunghills, or pasture grounds: it is white, lies in lumps of rotten dung like small white thread, and has exactly the smell of a Mushroom. Keep it under dry litter till you are ready for it. The bed should be raised like the roof of a house; and when the heat is moderate, place the spawn just within the surface, seven inches asunder, and in rows eight inches from one another; then beat the surface smooth with a spade, lay on an inch and a half of rich dry earth, and over that a covering of clean wheat-straw, a foot thick, which must be replaced after heavy rains. By these means you may frequently procure Mushrooms in six weeks; but do not despair if you have none for four months, as they will then often rise in greater plenty and perfection.

Remove and set slips of flowers, set rows of Strawberries, and Barberries.

Autumn, or harvest-quarter, begins the 22d of September.

NURSERY, FRUIT, and FLOWER GARDENS.

Plant Liquorice roots about two feet asunder, in a moistish earth. Set Artichokes, and sow seeds for Winter-Herbs. Sow Wheat and Rye.

Sow Parsnips and Carrots in a free open air, and moistish soil.

No tree should be removed till it is divested of all its leaves; in which state any one may now be transplanted.

Gooseberries and Currants may be propagated by cuttings and slips, from the middle of this month to the middle of February.

Carry the tender exotics into the Green-house, and refresh Hot-house plants with air and water in due season and proportion; and transplant hardy shrubs and trees; also biennial or perennial plants, with a ball of earth, watering them immediately.

Plant box, either in slips or by separating the roots, and trimming them. Cut quicks towards the end of the month.

OCTOBER.

WORK *to be done in the* KITCHEN GARDEN.

SOW all sorts of fallad herbs upon decayed hot-beds, such as Lettuce, Cresses, Radish, Mustard, and Spinage. And the stems of Brocoli plants to protect them from the Frost.

If any Cabbage-plants remain in the seed-beds, remove them as soon as possible into a bed of rich earth, in a warm situation.

Keep Cauliflower plants uncovered in fine weather; and towards the latter end of the month transplant some of them for a crop, to be covered with bell glasses in hard weather.

Begin to plant Beans and Pease for early crops. The Mazagan Bean, and the Hotspur Pea, are accounted the best; for this purpose sow them in warm borders, and in rows across the borders.

Lettuce plants, sown in August and September, should now be transplanted into warm borders, to stand the winter without covering.

Tie up Endive every week for blanching, and draw the earth up round almost to the top of each plant.

Earth up Brocoli and Celery, as it grows in height; and sow Carrot-seed for an early crop.

Cut Artichokes with long stalks, which you may preserve in the house, by setting them in sand.

Dung and trench that part of your ground that is vacant, and intended to lie fallow till the spring; and it will add to its fertility to lay it up in ridges.

NURSERY, FRUIT, *and* FLOWER GARDENS.

Forest trees and flowering shrubs should now be propagated by layers; those layers taken up and planted that have been down a year.

Sow Acorns upon a good bed, and cover them an inch thick.

Continue housing Oranges, Lemons, Myrtles, &c. &c. and begin to make fires in your hot-house in the evening.

Make Plantations of the suckers of Gooseberries, and Currants.

Secure Auriculas and Carnation layers from bad weather.

Plant Tulips, Hyacinths, Anemonies, Crocuses, Snow-Drops, Narcissuses, Jonquils, and other bulbous roots taken up this summer, from six to nine inches asunder, on beds laid in a rounding form, highest in the middle.

Slip and plant Polyanthus, and set Double Daisies, Violets, and other low-growing fibrous-rooted plants, fifteen inches from the edge of the border.

Remove all the seedling Flowers in boxes or pots into a warm situation, to receive a full sun all the winter, and be screened from cold and cutting winds.

Plant hardy flowering shrubs at such distances that they may not choak one another, but please the eye.

Continue to sow Wheat, set up your Barley land, sow Mafts for coppices or hedge-rows; plant Quicksets, and plash hedges; and plant all sorts of Forest-trees that shed their leaves.

NOVEMBER.

N O V E M B E R.

WORK *to be done in the* KITCHEN GARDEN.

CONTINUE to sow Beans and Pease on a warm border, to succeed those sown last month.

About the middle of this month, begin to cut off the leaves of Artichokes close down to the ground, and throw the earth up in ridges about the plants, which will keep out the frost better than laying long dung over them. In very severe weather, however, they will require a covering of straw or litter.

Take up Carrots and Parsnips, and other kitchen roots, early this month in a dry day, for winter stores. Cut the tops off close, clean them from dirt, and deposit them in a bed of dry sand, with the crowns of the roots outwards, over which lay a covering of dry straw.

Potatoes should be laid in a dry room, and in frosty weather covered with straw a foot thick. Examine them frequently, and take out the rotten ones, otherwise they will corrupt the whole stock. Makes hot-beds for Asparagus.

Gather only the outside leaves of Spinage at this season, and the inner ones will grow larger against another gathering.

NURSERY, FRUIT, *and* FLOWER GARDENS.

If the season proves mild, you may continue to prune Apple-Trees, be they Standards, Wall-Fruit, or Espaliers; but you should not prune them later, lest rains and frosts should hurt the trees, when the wounds are fresh.

Trench your ground, by laying it up in ridges to mellow. Set Crab-Tree stocks to graft on; continue to plant suckers and cuttings of Goosberries, Currants, and Raspberries; fell coppices, and lop trees; plant Timber and Fruit-Trees, if the weather be open.

NURSERY, FRUIT *and* FLOWER GARDENS.

Prepare your land for new plantations in February or March.

Stake and tie new-planted trees; lay mulch on their roots, and cover the beds of seedling exotic plants, in sharp frosts, with hoops and mats, or totally with pease-straw, &c.

Plants in pots should be plunged into the earth to the rim in a warm situation, when they may be easily covered.

Open the Green-house windows in the middle of the day, and water the plants as there shall be need.

Shelter the choicest of your Tulips, Hyacinths, Ranunculuses and Anemonies, from heavy rains, sharp frosts, and snow.

Continue to transplant Roses, Syringas, Honeyuckles, and other hardy flowering shrubs, as before directed; and prune off their irregular branches at the same time.

Prepare the ground for receiving the more tender plants in the spring. Clear the gravel walks of weeds, moss, and rubbish, and roll them once a week in a dry day; which will keep them in better order than the modish custom of digging them up for the winter.

DECEMBER.

D E C E M B E R.

WORK *to be done in the* KITCHEN GARDEN.

ABOUT the middle of this month sow fresh crops of Pease and Beans, as directed in October: and towards the latter end of the month sow Sandwich Beans to succeed the others. If the former crops be above ground, earth up their stems, and continue to do so as they advance, to preserve them from the inclemency of the season.

Small Sallading is now raised entirely in frames of light dry earth; and the seeds require only to be just covered. If very severe, sow them in slight hot beds. Towards the end of the month, sow Radishes, Carrots, and Lettuce, on warm borders.

Keep your mushroom-beds covered with a coat of straw one foot thick; and if at any time the covering next the bed be found wet, remove the straw, and put dry in its place.

Continue to blanch Endive as directed in October; and to earth up the plants of Celery, Cauliflowers, Artichokes, &c.

In open weather the Gardener should employ himself in trenching and digging; and in hard frosts he should bring in dung to manure where it is wanted.

Winter quarter begins 21st of December.

NURSERY, FRUIT *and* FLOWER GARDENS.

Set all sorts of Stones, Kernels, &c. Plant Vines, and stocks for grafting.

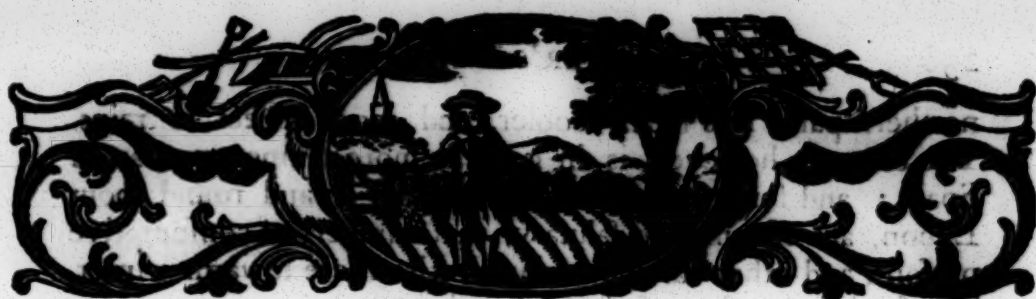
Shelter your seedling exotics, and seed-beds, with straw or dry litter, before the frost has penetrated into the ground; and pay a proper attention to new-planted trees and shrubs, by laying mulch and driving stakes, to keep the roots warm, and support them from the wind.

The chief attention of the Florist in this month is to prevent the damage which may arise from the inclemency of the season; severe frosts, cutting north-easterly winds, great snows, and heavy rains, will destroy the produce of his former industry, if he leaves them exposed. Keep therefore the Auriculas, Carnations, Ranunculuses, Tulips, Hyacinths, and Anemonies, under safe cover; sink the pots of seedlings, and hardy flowering shrubs, up to the brim in a warm border, and cover them with litter in a hard frost.

Prune all trees and shrubs that stand in need thereof.—You should always be provided with a mixture of rosin, mutton-suet, and bees-wax, made into a plaister, to cover any large wounds made with the knife, as soon as the branch is cut off.

Keep the walks in order; prepare compost for your flowers; and continue to prepare your ground, if the weather will permit, for planting. Plant all sorts of trees, that shed their leaves.

THE



T H E
FARMER'S MAGAZINE.

S E P T E M B E R, 1780.

A DISSERTATION *on the Progress and present State of*
AGRICULTURE. [Continued.]

P O R T U G A L.

PORTUGAL is situated between the seventh and tenth degrees of west longitude, and between the thirty-seventh and forty-second of north latitude, being about three hundred miles in length, and about an hundred and twenty in breadth, where broadest, but in some places it is only sixty. On the south and west it is bounded by the Atlantic ocean, and on the north and east by Spain. This kingdom is usually divided into three parts, viz. the northern, middle, and southern provinces.

	Provinces.	Chief Towns.
The north division contains	Entre Minho,	{ Braga.
	Douro,	{ Oporto and Viana.
	Tra los Montes,	{ Braganza. Miranda and Villa-Real.
The middle division contains	Beira,	{ Coimbra. Guarda.
	Estremadura,	{ Lisbon. St. Ubes and Leira.
The south division contains	Entre Tajo,	{ Ehora, or Evora.
	Guadiana,	{ Portalegre, Elvas, Bira.
	Alentejo,	{ Lagos.
	Algarva,	{ Faro, Tavora, and Silves.

The air in the south of Portugal would be exceedingly hot, if it were not refreshed by the breezes from the sea; but in the
VOL. V. L 1 northern

northern parts it is much cooler, and more subject to rains. The climate, however, is in general more temperate than in Spain; and some parts of it, particularly in and round about Lisbon, are esteemed so salutary, that numbers of consumptive persons, and other valetudinarians, retire there towards winter. The soil is in no shape so fruitful as that of Spain.

In the northern parts the cattle are large and fine, but in the southern they are small and lean. The sheep, which are fed on some particular pastures, afford as good mutton as any in Europe; but in general their kids and hogs are much the best eating. The horses in Portugal are brisk and lively, but extremely flight; for which reason the inhabitants make use of mules, both for carriage and draught. The fish on the coast of this kingdom are very fine, and the birds resemble those of Spain. Vast quantities of delicious honey are produced in Portugal.

The soil is either not favourable to the growth of corn, or the inhabitants are too indolent to cultivate it properly; for it never produces sufficient to support the inhabitants, who import it either from Spain or England. Some places produce good pasture, but in general it is very coarse. They have every kind of fruit in common with Spain, but they are not so high flavoured. Herbs and flowers abound there, and great quantities of perfumed waters are distilled from the odoriferous kinds, which in some shape or other are used by the natives in every thing they eat, drink, and wear. They are particularly attentive to the culture of their vineyards, which yield excellent grapes, and the quality of the wine made from them is too well known to need any eulogium here.

I T A L Y.

ITALY is situated between the seventh and tenth degrees of east longitude, and between the thirty-seventh and forty-sixth of north latitude. On the north it is bounded by Switzerland and the Alps, which divide it from Germany; on the east, by another part of Germany, and the gulph of Venice; on the south, by the Mediterranean; and on the west, by the same sea, the Alps, and the river Var, which divide it from France. From the frontiers of Switzerland to the extremity of the kingdom of Naples, it is about seven hundred and fifty miles in length; and from the frontiers of the duchy of Savoy, to those of those of the dominions of the state of Venice, about four hundred: this, however, is its greatest breadth; for its form is so irregular, that in many parts it is scarce a fourth so broad. It is usually thrown into three grand divisions, viz.

Grand

Grand divisions.	Subdivisions.	Chief Towns.
1. The upper or northern division, comprehending Lombardy,	Savoy dukedom, Piedmont principality of { Rep. Duchies of { Montferrat, Milan, Parma, Modena, Mantua, Venice, Genoa,	Chamberry. Turin. Casal. Milan. Parma. Modena. Mantua. Venice. Genoa.
2. The middle division contains	Tuscany dukedom, Pope's territories, Rep. { Luca, St. Marino,	Florence. Rome, Luca. Marino.
3. The lower or southern division contains	Naples, kingdom, now called Sicily,	{ Naples.
Savoy Duchy, subject to the king of Sardinia	Savoy Proper, Geneva, C. Chablais, C. Tarantaise, Maurienne Valley, Fossigny,	Chamberry. Montmelian. Annecy. Tonor, or Thonon. Monstriers. St. John de Maurienne Bonneville.
Piedmont principality, subject to the king of Sardinia,	Piedmont Proper, Vercell, lordship, Masseran, princip. Ivrea, marq. Asti, C. Susa, marq. Saluzza, marq. Vaudois Vallies, Nice, or Nizza, ter. Tende, C. Aouste, C.	Turin. Pignerol. Carignan. Vercell. Masseran. Ivrea. Asti. Susa. Saluzza, Coni. Pragelas, or Cluson. Nice. Tende. Aouste.
	Montferrat, dutchy, subject to the king of Sardinia,	{ Casal. Alby. Aqui.

	Subdivisions.	Chief Towns
Milanese	Subj. to the queen of Hungary { Milanese Proper, Pavese, Novarese, Comasco, Lodese, Cremonese,	{ Milan. Pavia. Novara. Como. Lodi. Cremona.
	Subj. to the king of Sardinia { Tortonese, Alexandria, Lomellin,	{ Tortona. Alexandria. Lomello.
Genoa, W. coast	Genoa Proper, Savona, ter. Vado, ter. Noli, ter. Final, ter. Albenga, ter. Oneglia, ter.	{ Genoa. Savona. Vado. Noli. Final. Albenga.
	Subject to its prince { St. Remo, ter. Vintimiglia, ter. Monaco, princ.	{ Oneglia, subj. to the king of Sardinia. St. Remo. Vintimiglia. Monaco.
Eastern coast	{ Rapallo, ter. Lavigna, ter. Spezia, ter.	{ Rapallo. Lavigna. Spezia.
Parma, subject to Don Philip	{ Parmesan, Placentia, D.	{ Parma. Placentia.
Modena, subject to its own duke	{ Modena, B. Mirandola, D. Rhegio, D.	{ Modena. Mirandola. Rhegio.
	{ Borsello, Carpi.	{ Borsello. Carpi.
Mantua, D. subject to Austria, except Guastalla, ceded to Don Philip	{ Mantua Proper, Guastalla,	{ Mantua. Guastalla, subject to the prince Parma.
	{ Castiglione, Luzzara.	{ Castiglione. Luzzara.

Venice

	Subdivisions.	Chief Towns
Venice republic	Venice, D.	Venice.
	Paduan,	Padua.
	Veronese,	Verona.
	Bresciano,	Brescia.
	Bergamasco,	Bergamo.
	Cremaſco,	Crema.
	Vicentino,	Vicenza.
	Rovigno,	Rovigno,
	Trevigiano	Treviso.
	Belluneſe,	Belluno.
	Friuli,	Aquileia.
	Udineſe,	Udine.
	Iſtria, part,	Cabo de Iſtria.

Islands in and near the Gulph of Venice, Cherſo, Ofcio, Vegia, Arbe, Pago, Longa, Brazza, Lefina, Curxola, Cephalonia, Corfu, Zant, La Praga.

	Subdivisions.	Chief Towns.
Venetian towns on the coaſt of Dalmatia		{ { Zara. Nona. Spalatto. Sebinico.
Morlaechia		Segna.
Tuſcany, grand duchy, ſubject to the em- peror	{ Florentino, D. Siennefe, D. Piſan,	{ Florence. Sienna. Piſa. Leghorne. Piombino.
Maſſa Carara, principality, ſubject to its prince		{ Maſſa.
Lucca, republic		Lucca.
Coaſt del Preſidii, ſubject to the king of the Two Sicilies		{ Orbitello.
Pope's territories	{ Campania of Rome,	{ Rome. Tivoli. Freſcati. Oſtia. Albano.
		Pope's

	Subdivisions	Chief Towns.
	St. Peter's Patri- mony,	Viterbo. Civita Vecchia. Bracciano. Castro. Orvieto. Aquapendente.
	Ombria, or Spoleto,	Spoletto. Narni. Terni. Perugia
Pope's territories	Ancona, M.	Ancona. Loretto.
	Urbino, D.	Urbino. Pesaro. Semigaglia
	Romania,	Ravenna. Rimini.
	Bolognese,	Bologna.
	Ferrarese,	Ferrara. Comachia.
	St. Marino, republic,	St. Marino.
	Lavoro,	Naples. Capua. Gaieta.
	Ultra, princip.	Benevento.
	Citra, princip.	Salerno.
	Molise,	Bojano.
	Basilicate,	Cerenza.
Naples, now called Sicily	Citra Calabria,	Cosenza.
	Ultra Calabria,	Rhegio.
	Ultra Abruzzo,	Aquila.
	Citra Abruzzo,	Chieti.
	Capitinat,	Manfredonia.
	Bari,	Bari.
	Otranto,	Otranto. Brundisi. Tarento.

ITALIAN ISLANDS.

	Subdivisions.	Chief Towns.
Sicily	{ Val de Mazara, Val de Demona, Val de Nota,	{ Palermo. Messina. Catania. Syracuse. Nota.
Sardinia	{ Cabo de Cagliari, Cabo de Logodari,	{ Cagliari. Oristagni. Sassari. Castel Aragonese.
Corfica	— — —	{ Bastia. Bonifacio.
Malta, subject to the knights of St. John of Jerusalem	— — —	{ Malta, or Valetta,
Lipari islands, N. of Sicily	{ Lipari, Strombolo, Rote, Panaria, Elicusa,	{ Lipari.
Islands on the W. coast of Italy	{ Capri, Ischia, Ponza, Giglio, Elba, Piamosa, Capraria, Gorgona,	{ Capri, Ischia Porto Longone, subject to Sicily. Porto Ferraio, subject to Tuscany. Gorgona.

The climate of Italy is in some places very salutary, and in others quite the contrary; the air in some parts hot, and in others cold; among the latter are those towns which are situated in the neighbourhood of the Alps, the ground being covered with snow all the winter. The countries south of the Appenines are exceedingly warm; and those on the north mild and temperate. The air of the Campania of Rome, and of the Ferrarese, is esteemed unwholesome, owing to the great decrease of inhabitants in those places since the time of the Romans, which
has

has occasioned a stagnation of the waters, and other putrid exhalations; but the other parts may in general be pronounced dry and healthy. The summers in Naples are intensely hot, and at this season it would be almost uninhabitable, were it not for the refreshing breezes that frequently blow from the sea, with which it is nearly surrounded. The soil is remarkably fertile.

The animals found in Italy are the same, in general, with those of France and Germany. The marmotte, which is a species of mouse, is peculiar to the mountains of that country, particularly the Alos. Several parts of Italy are infested with venomous insects, among which is the tarantula, a large spider, having a body about three quarters of an inch long, and the thickness of a moderate man's finger. The colour is usually an olive brown, variegated with a duskier hue, but in this they frequently differ; it is covered with a short and soft down, or hairiness, and the points of its forceps are very fine and sharp. The bite of this insect is certainly exceeding painful for a time, but the other strange effects attributed to it, such as its causing a person to weep, laugh, vomit, &c. and likewise the ridiculous method of curing the patient by music, are all entirely fabulous. The inhabitants feed great numbers of silk-worms. The most remarkable among the birds that frequent the Alps, is the iron-coloured eagle, also known by the name of the golden eagle; and in the Tremiti islands, there is a bird called by the ancients, the Diomedan bird. It is of the size of a common hen, some are of a dusky brown, and others entirely white; they have flame-coloured eyes, short teeth, and seize their prey with great violence.

The vegetable productions of this country are, corn of all sorts, rice, olives, grapes of various kinds, from which most excellent wines are made; oranges, lemons, citrons, pomegranates, almonds, raisins, mulberries, figs, peaches, nectarines, apricots, pears, apples, filberds, chesnuts, and every other kind of fruit. Some of the mountains are covered with aromatic herbs, trees, shrubs, and ever-greens, as thyme, lavender, laurel, bays, wild olive-trees, tamarinds, juniper, oaks, and pines. Calabria, in Naples, produces a sort of ash, from which flows that well-known drug, called Manna; the cork-tree is also a native of Italy; and truffles grow there naturally, in as great plenty as mushrooms with us.

[To be continued.]

ART. II.

ART. II. *Improvements in AGRICULTURE made by Lord Chief Baron Forster, and the Archbishop of Armagh; with Lord Shannon's Experiments of yoking Oxen by the Horns.*

[From Mr. Young's Tour in Ireland.]

‘ **T**OOK the road to Cullen, where the Lord Chief Baron Forster received me in the most obliging manner, and gave me a variety of information uncommonly valuable. He has made the greatest improvement I have any where met with. The whole country 22 years ago was a waste sheep-walk, covered chiefly with heath, with some dwarf furze and fern. The cabbins and people as miserable as can be conceived; not a Protestant in the country, nor a road passable for a carriage. In a word, perfectly resembling other mountainous tracts, and the whole yielding a rent of not more than from 3s. to 4s. an acre. Mr. Forster could not bear so barren a property, and determined to attempt the improvement of an estate of 5000 acres till then deemed irreclaimable. He encouraged the tenants by every species of persuasion and expence; but they had so ill an opinion of the land, that he was forced to begin with 2 or 3000 acres in his own hands; he did not, however, turn out the people, but kept them in to see the effect of his operations.

‘ These were of a magnitude I have never heard before: he had for several years 27 lime-kilns burning stone, which was brought four miles with culm from Milford-Haven. He had 450 cars employed by these kilns, and paid 700l. a year for culm; the stone was quarried by from 60 to 80 men regularly at that work; this was doing the business with incomparable spirit—yet had he no peculiar advantages, but many circumstances against him, among which his constant attendance on the courts, which enabled him to see Cullen but by starts, was not the least. The works were necessarily left to others at a time that he could have wished constantly to have attended them.

‘ While this vast business of liming was going forward, roads were also making, and the whole tract inclosed in fields of about 10 acres each, with ditches 7 feet wide, and 6 deep, at 1s. a perch, the banks planted with quick and forest trees. Of these fences 70,000 perches were done.

‘ In order to create a new race of tenants, he fixed upon the most active and industrious labourers, bought them cows, &c. and advanced money to begin with little farms, leaving them to pay it as they could. These men he nursed up in proportion to their industry, and some of them are now good farmers.

mers, with 4 or 500l. each in their pockets. He dictated to them what they should do with their lands, promising to pay the loss, if any should happen, while all the advantage would be their own. They obeyed him implicitly, and he never had a demand for a shilling loss. — He fixed a colony of French and English Protestants on the land, which have flourished greatly. In Cullen are 50 families of tradesmen, among whom sobriety and industry are perfectly established.

Many of these lands being very wet, draining was a considerable operation; this he did very effectually, burying in the drains several millions of loads of stones.

The mode in which the Chief Baron carried on the improvement, was by fallowing. He stubbed the furze, &c. and ploughed it, upon which he spread from 140 to 170 barrels of lime per acre, proportioning the quantity to the mould or clay which the plough turned up. For experiment he tried as far as 300 barrels, and always found, that the greater the quantity, the greater the improvement. The lime cost him 6l. a barrel on the land; his usual quantity 160, at the expence of 6l. an acre, and the total of that expence alone thirty thousand pounds! After the liming, fallowed the land for rye, and after the rye took two crops of oats. Throughout the improvement, the lime has been so exceedingly beneficial, that he attributes his success principally to the use of it. Without it, all other circumstances equal, he has got 3 or 4 barrels an acre of oats, but with it 20 and 22 of barley. Has compared lime and white marl on an improved mountain-soil for flax; that on the lime produced 1000 lb. well scutched, the other 300 lb.

His great object was to shew the tenantry, as soon as he could, what these improvements would do in corn, in order to set them to work themselves. He sold them the corn crops on the ground at 40s. an acre; the three crops paid him therefore the expence of the liming, at the same time they were profitable bargains to the tenants. With the third corn-crop the land was laid down to grass. Upon this operation, after the manuring, ditching, and draining, the old tenants very readily hired them. Some, seeing the benefit of the works, executed them upon their own lands; but their landlord advanced all the money, and trusted to their success and honesty for the payment. This change of their sentiments induced him to build new farm-houses, of which he has erected above 30, all of lime and stone, at the expence of about 40l. a house; the farms are in general about 80 acres each.

After six or seven years, the Chief Baron limed much of it a second time on the sod, and the benefit of it very great. It

is all let now on an average at 20s. an acre. Upon the whole, his Lordship is clearly of opinion, that the improvement has been exceedingly profitable to him, besides the pleasure that has attended so uncommon a creation. He would recommend a similar undertaking to others who possess wastes, and if he had such another estate he would undertake it himself.

• He also allotted a considerable tract of many acres for plantations, which are well placed and flourishing. Ridings are cut in them, and they form a very agreeable scenery. Mr. Forster, his son, takes much pleasure in adding to them, and has introduced 1700 sorts of European and American plants. The country is now a sheet of corn: a greater improvement I have not heard of, or one which did more genuine honour to the person that undertook it.

• This GREAT IMPROVER, a title more deserving estimation than that of a great general or a great minister, lives now to overlook a country flourishing only from his exertions. He has made a barren wilderness smile with cultivation, planted it with people, and made those people happy. Such are the men to whom monarchs should decree their honours, and nations erect their statues.

As a suitable companion to the above piece, we shall subjoin the picture of Ardmagh, as improved by the present Primate:

• July 29d, his Grace rode out with me to Ardmagh, and shewed me some of the noble and spirited works by which he has perfectly changed the face of the neighbourhood. The buildings he has erected in seven years, one would suppose, without previous information, to be the work of an active life. A list of them will justify this observation.

• He has erected a very elegant palace, 90 feet by 60, and 40 high, in which an unadorned simplicity reigns. It is light and pleasing, without the addition of wings or lesser parts, which, too frequently wanting a sufficient uniformity with the body of the edifice, are unconnected with it in effect, and divide the attention. Large and ample offices are conveniently placed behind a plantation at a small distance: around the palace is a large lawn, which spreads on every side over the hills, and skirted by young plantations, in one of which is a terrace, which commands a beautiful view of cultivated hill and dale. The view from the palace is much improved by the barracks, the school, and a new church at a distance, all which are so placed as to be exceedingly ornamental to the whole country.

• The barracks were erected under his Grace's directions, and form a large and handsome edifice. The school is a building of considerable extent, and admirably adapted for the

purpose; a more convenient or a better contrived one, is nowhere to be seen. There are apartments for a master, a school-room 56 feet by 28, a large dining-room, and spacious airy sleeping-rooms, with every other necessary, and a spacious playground walled in; the whole forming a handsome front: and attention being paid to the residence of the master, (the salary is 400*l.* a year) the school flourishes, and must prove one of the greatest advantages to the country of any thing that could have been established. This edifice entirely at the Primate's expence. The church is erected of white stone, and, having a tall spire, makes a very agreeable object, in a country where churches and spires do not abound—at least such as are worth looking at. Three other churches the Primate has also built, and done considerable reparations to the cathedral.

‘He has been the means also of erecting a public infirmary, which was built by subscription, contributing amply to it himself.

‘A public library he has erected at his own expence, given a large collection of books, and endowed it. The room is excellently adapted, 45 feet by 25, and 20 high, with a gallery, and apartments for a librarian.

‘He has further ornamented the city with a market-house and shambles, and been the direct means, by giving leases upon that condition, of almost new-building the whole place. He found it a nest of mud cabins, and he will leave it a well-built city of stone and slate. I heard it asserted in common conversation, that his Grace, in these noble undertakings, had not expended less than 30,000*l.* besides what he had been the means of doing, though not directly at his own expence.

‘When it is considered, that all this has been done in the short term of seven or eight years, I should not be accused of exaggeration, if I said they were noble and spirited works undertaken upon a man's paternal estate; how much more then are they worthy of praise, when executed, not for his own posterity, but for the public good?’

The revenues of the primacy are estimated at 8,000*l.* *per annum*. Thus in public works alone this truly munificent prelate has expended more than half his annual income! It is said that the lands of the primacy, if let as a private estate, would be worth near one hundred thousand pounds a year. If every succeeding Primate were to possess the noble and princely spirit of the present Archbishop, it would be a happy thing for Ireland if the revenues of the primacy were at their extended value.

The reproach of forcing draught horses to pull by the tail is, we believe, peculiar to Ireland. What will our Readers think

think of the following custom, equally singular, of oxen drawing by the horns; which has lately been introduced into that country by Lord Shannon?

• Lord Shannon, upon going into tillage, found that the expence of horses was so great, that it eat up all the profit of the farm; which made him determine to use bullocks; he did it in the common method of yokes and bows, but they performed so indifferently, and with such manifest uneasiness, that he imported the French method of drawing by the horns: and, in order to do this effectually, he wrote to a person at Bourdeaux to hire him a man who was practised in that method. Upon the correspondent being applied to, he represented difficulties attending it, the man who was spoken to having been in Germany for the same purpose. Upon which Lord Shannon gave directions that every thing should be bought and sent over which the labourer wished to bring with him. Accordingly, a bullock of the best sort, that had been worked three years, was purchased; also a hay-cart, a plough, harrows, and all the tackle for harnessing them by the horns, which, with the man, were sent over. His salary was to be 400 livres a year, with board, &c. The bullock, 218 livres; tackle for two bullocks, 36. Two carts, 314. A plough and harrow, 123; which, with other expences, came to 45l. 17s. and freight 16l. 16s. Upon the whole, the experiment cost from first to last, to bring it thoroughly to bear, an hundred pounds. His Lordship is persuaded, that the first year of his introducing it at large on his farm, saved him the whole. He has pursued the method ever since, and with the greatest success. He finds the bullocks so perfectly at their ease, that it is a pleasure to see them; for first breaking up lays, and for cross-ploughing, he uses four, but in all succeeding earths, only two; nor more for the first ploughing of stubbles. I saw six ploughs doing this in a wheat stubble, and they did it five or six inches deep with great ease. Upon first introducing it, there was a combination among all his men against the practice, but Lord Shannon was determined to carry his point; in this matter, he followed a course that had all imaginable success: one lively sensible boy took to the oxen, and worked them readily. His Lordship at once advanced this boy to eight-pence a day: this did the business at once; others followed the example, and since that he has had numbers who could manage them, and plough as well as the Frenchman. They plough an acre a day with ease: and carry very great loads of corn and hay, coals, &c. Four bullocks in the French cart brought twelve barrels of coals, ship measure, each 5 cwt. or three tons; but the tackle of the fore couple breaking, the
other

other two drew the load above a mile to a forge. Two of them drew 35 cwt. of flag stone three miles, with ease; but Lord Shannon does not in common work them in this manner; three tons he thinks a proper load for four bullocks. Upon the bailiff, Mr. Bere, mentioning loads drawn by these oxen, that appeared to me most extraordinarily great, I expressed many doubts; his Lordship immediately ordered the French harvest cart to be loaded half a mile from the ricks; it was done; 1020 sheafs of wheat were laid on it, and two oxen drew it without difficulty. We then weighed 40 sheafs; the weight 251 lb. at which rate the 1020 came to 6375 lb. or above three tons; which is a vast weight for two oxen to draw; I am very much in doubt whether in yokes they would have stirred the cart so loaded.

If this account be true, and there can be no reason to dispute it, perhaps the Irish may not be so much mistaken when they insist that a horse 'tired in traces, if put to work by the tail, will draw better, quite fresh again.' The principal objection to either method, viz. that of drawing oxen by the horns, or horses by the tail, seems to be, that it is painful to the animal: with respect to a single exertion, there can be no doubt but in either case they have the power of exerting their full strength, which perhaps may in some degree be impeded by more artificial modes of draught.

[To be Continued.]

ART. III. *Receipt for the Stone and Gravel.*

MR. SYLVAN,

AS I can, from numerous testimonies, and from my own experience, recommend the subjoined receipt as highly efficacious in the Stone and Gravel, I make no apology for sending it to you for publication. If but a single person should find benefit from it, when languishing under one of the severest maladies incident to the human frame, I shall think myself amply recompensed. The advance of the season for making it will point out to you the necessity of publishing it in your next.

S. G.

"TAKE a sufficient quantity of blackberries, in their unripe state, while they are red; put these into a jar well covered, and set the jar in a kettle of water over the fire; let it continue there five or six hours; then let the juice or pulp pass through a sieve, and to every pint of it add two pounds of white lump sugar powdered; then boil and scum it, as you do other jams or jellies.—Take a tea spoonful of this every night going to bed, when in pain; repeat it in the morning if necessary."

Mr. George Gwinnet Gibbes, cabinet-maker, in Barton-street, near Gloucester, was afflicted with the stone for four years past, to a very violent degree. He made a quantity of the blackberry jam according to the preceding recipe, and, by continuing the use of it for half a year, was quite relieved from his pain, and that tightness which he used to feel across his loins; but for want of a sufficient quantity to continue the use of it, his pains returned, though a few weeks ago he received fresh relief by a small pot, which was given him by another person who had also made it.

ART. IV. *Accidents to which Cattle and Crops are liable.*

[Continued from page 240.]

Of the Care of the fields in the Management of Shelter.

THERE are plants which will endure drought much better than others; and these the farmer must contrive to have on his lands at the time when he is to cut his fences. This will not be difficult, because the cutting these is always in his own choice; he may not only do it when he pleases, but he may know a year or two before hand, and provide accordingly.

The general rule is, that the deeper plants root the better they resist drought; and the reason is very obvious, because drought affects herbs only in proportion to their want of resources against it, and these resources are always greater the deeper they are sough. A little dry weather will parch the earth about a slight-rooted crop; but it must be a long continuance indeed that can affect it to the depth some of the new introduced plants reach.

He will always know at what time it will be bare, at what time it will have grown to a moderate defence, and when it will be in its full perfection: therefore let him, against such years as the shelter will be most perfect, sow those crops that root the most slightly, and leave the ground most open between them, for they will least of all bear drought. This last-named article is more important than is imagined, for the earth parches much sooner where it is exposed between the plants, than where their branches shelter it; and on this depends greatly the different effect of corn and pulse upon the ground.

The husbandman's own discretion will carry him on to sow, for the time of middle growth of his fences and trees, such crops as require a moderate shelter, but will not very easily be parched up; but the great consideration is with respect to the years in which the fences will be barest. We have directed
him

him to sow such a crop as requires most shelter, at that time when the hedges and trees are thickest. We will suppose this the year before the trees are to be lopped, and the hedges cut down: the next season therefore is to be that in which the fields will be left most of all exposed; and consequently, if a drouthy year come, the most disadvantageous.

It is well known, that dry and barren lands suffer the most from drought: therefore care should be most of all taken with respect to them: the fences for them should be planted thick, and the trees at small distances in them. In many parts of the kingdom, since inclosures have become more general, lands that were worth little while open, are come to great value by this article of defence. The crops on these lands are least able to bear parching winds, and therefore they the most evidently of all shew the effect and benefit of shelter; but this effect on them is sufficient to recommend the practice universally, where there is danger of these accidents.

TREES, like all other products of the earth, are liable to be affected greatly by drought; but it is only while they are young: they are at that time destroyed by it more easily than plants of the herbaceous kind; but when they are established in the ground, they remain unhurt by its utmost violence. In this experience confirms what is so plain from reason, in the effect of drought, upon deep and shallow-rooted products. The principal effect of this accident is on the surface of the ground; and, when the root of any thing pierces to a proper depth, the whole remains unhurt by all that happens above ground.

Having recommended planting of trees in waste grounds and hedges, we shall here obviate the great discouragement attending that practice, from the frequent failing of the plantation by Drought; which, of all accidents to which they are subject, is the most mischievous, and this especially where the plantation is made on an exposed barren piece of ground.

These are the places where trees would be most desirable, but from the frequent failure of them farmers have entertained a notion they will not grow. That nature can raise and support them in such places is evident, because we see them wild and of fine stature, though it is so difficult to make them thrive when a plantation is intended on such ground.

Let the husbandman imitate Nature. That is, let him sow the trees, of whatever kind; and not plant them. And as we have told him what is the great cause of their failing, let him guard properly against it.

The practice of laying stones or rubbish about the roots of new-planted trees, is very good, and may be also used for those raised

raised from the fruit; but we have prescribed a method for the securing of smaller crops from drought, which may, under a proper management, be transferred to these with great advantage.

The young tree is the only consideration in this case, for when established it is safe; therefore let a defence be raised for it while in that state. It is easy to sow something of this kind at the same time with the tree, and they will rise together.

It is true, every shrub for shelter will not thrive upon these barren grounds where we propose plantations, but there are enough that will. A poor ground in an exposed field is the proper soil for furze; for we see it on the worst ground, on the bleakest heaths, and barrenest hills, flourishing well. This therefore will grow from seed in these places, and nothing can be more proper for the service. Therefore when the husbandman sets about a plantation on this kind of ground, let him, at a distance round every spot where he intends a tree shall stand, sow a good quantity of furze seed in a circular trench.

This will defend the young shoot of the tree from winds, and also from cattle. By this simple contrivance, the shoot will rise prosperously; and when it is out of danger, the furze may be cut up for use. Thus will a fair plantation be raised by nature's own means; and it will succeed in the same way as those which are established in like places naturally. They have risen from the scattered seeds or fruits of the same kind, and have stood their chance and throve without those advantages, therefore doubtless these will do better.

If, after the furze is removed, the trees appear not to thrive well, from the heat and dryness of the season, and from the exposure, let the farmer order a bank of earth a foot and a half high and a yard broad, to be raised round the bottom of every one of them, and they will immediately shew the good effect of it in their reviving; this presses and strengthens the earth about their roots; and it gives them, in some degree, the advantage of deep rooting, which we have observed to be the greatest of all defences against drought.

[*To be continued.*]

ART. V. *Useful Receipts for Captains of Ships.*

To make Catchup to keep twenty Years.

TAKE a gallon of strong stale beer, one pound of anchovies washed from the pickle, a pound of shallots peeled, half an ounce of mace, half an ounce of cloves, a quarter of an ounce

of whole pepper, three or four large races of ginger, two quarts of the large mushroom-flaps rubbed to pieces. Cover all this close, and let it simmer till it is half washed, then strain it thro' a flannel bag, let it stand till it is quite cold, then bottle it. You may carry it to the Indies. A spoonful of this to a pound of fresh butter melted, makes fine fish sauce: or in the room of gravy sauce. The stronger and staler the beer is, the better the catchup will be.

To make Fish-sauce to keep the whole year.

You must take twenty-four anchovies, chop them, bones and all, put to them ten shallots cut small, a handful of scraped horse-radish, a quarter of an ounce of mace, a quart of white wine, a pint of water, one lemon cut into slices, half a pint of anchovy liquor, a pint of red wine, twelve cloves, twelve pepper-corns. Boil them together till it comes to a quart; strain it off, cover it close, and keep it in a cool dry place. Two spoonfuls will be sufficient for a pound of butter.

It is a pretty sauce either for boiled fowl, veal, &c. or in the room of gravy, lowering it with hot water, and thickening it with a piece of butter rolled in flour.

To pot Dripping, to fry Fish, Meat, or Fritters, &c.

Take six pounds of good beef-dripping, boil it in soft water, strain it into a pan, let it stand till cold; then take off the hard fat, and scrape off the gravy which sticks to the inside. This do eight times; when it is cold and hard, take it off clean from the water, put it into a large sauce-pan, with six bay-leaves, 12 cloves, half a pound of salt, and a quarter of a pound of whole pepper. Let the fat be all melted and just hot, let it stand till it is hot enough to strain through a sieve into the pot, and stand till it is quite cold, then cover it up. Thus you may do what quantity you please. The best way to keep any sort of dripping is to turn the pot upside down, and then no rats can get at it. If it will keep on ship-board, it will make as fine puff paste crust, as any butter can do, or crust for puddings, &c.

To pickle Mushrooms for the Sea.

Wash them clean with a piece of flannel in salt and water, put them into a sauce-pan, and throw a little salt over them. Let them boil up three times in their own liquor, then throw them into a sieve to drain, and spread them on a clean cloth; let them lie till cold, then put them in wide-mouthed bottles,
put

put in with them a good deal of whole mace, a little nutmeg sliced, and a few cloves. Boil the sugar-vinegar of your own making, with a good deal of whole pepper, some races of ginger, and two or three bay leaves. Let it boil a few minutes, then strain it; when it is cold pour it on, and fill the bottle with mutton fat fryed; cork them, tie a bladder, then a leather over them, keep it down close, and in as cool a place as possible.

ART. VI. *Of planting hedges of the White and Black Thorn, Crab, and Holly.*

WHITE-Thorn is the best quick to plant, because it is the most common, and esteemed the handsomest and best fence; it will suit any soil, where a new ditch and bank is made, except the driest gravel or sand, and will often grow upon that too, if it prove a wet year; it is raised of seed or plants, but plants are the quickest way, the seeds lying two years in the ground before they spring, but they grow very fast after two or three years: Haws put in a hair bag, and soaked in water, or buried in the ground, or in sand, all winter, and sown in February or March, will come up the first year, and grow better than any other way. Where sets are scarce, then fell your underwoods, or rather the year before sow haws and flosses in them, and they will furnish you without doing of your woods any hurt, because you may draw them before they come too big; besides, the root of an old white-thorn will make very fine boxes and combs, and many of them are very finely veined, so that if they were suffered to grow large, they would be of great use for the cabinet-makers, as well as for the turners and others.

Next to the white, is the black-thorn and the crab, both which make very good fences, and are raised as the white-thorn, only if you sow apples or crab kernels, sow the pumace with them, which will come up the first year; and crab stocks planted close together, like quick, make an excellent hedge, and so will some sort of plums; but black-thorn is not reckoned quite so good for fences as the white, because it is apt to run more into the ground, and is not so certain of growing; but then the bushes are much the best, and more lasting of any for dead hedges, or to mend gaps; nor are cattle so apt to crop them as the other: they will grow upon the same sort of soil with the white-thorn, but the richer the mould is, the better they will prosper.

Another good sort of fence is holly, which is to be preferred to any other, were it not for its slow growth, and the difficulty that there is in getting it to grow at first; but afterwards it makes amends by its thickness, strength, and height; it is raised by sets or berries, like white-thorn, and lies the same time in the ground before it comes up; it will grow upon the driest gravel, or amongst stones or rocks, and it succeeds best in light grounds: if you raise it by plants, let them be about the thickness of your thumb, and take up as much earth with the root as you can. Plant them in a moist season, in autumn or spring, but autumn is the best: and take particular care to shade them well with hawm or straw, and water them till they begin to sprout. Some plant the sets in baskets, and so transplant them earth and all, which baskets being slight, they quickly rot in the ground and so give room for the roots to spread. If any of them seem to perish, cut them close to the ground, and they will spring from the roots. Keep sheep from them, (which are fond of cropping off the young shoots) and dig about their roots, which will very much help their growth; but by no means lay any dung near them. The best way of planting them is, to mix them with the white-thorn, and to let every fourth or fifth set be a holly, by laying of layers from it. Some purpose to take a well-rooted sett of a yard long, and strip off the leaves and branches, which, covered with a competent depth of earth, will send forth innumerable quantities of suckers, and quickly make a hedge. Field-mice are apt to gnaw their roots, and kill them, in hard winters.

Holly may likewise be raised of the berries, which, as they lie till the second spring before they come up, may be ordered as hereafter is directed for seeds of that kind; though some say, that if you lay the berries on a heap in a room all winter, in spring, the middlemost part of the heap will be cleared of the pulp that is about them, and begin to sprout, which being sowed immediately, will come up in about a month's time: but, as they are hardy plants, it is best to sow them in the place where you design them to grow, only you must mind to keep the place well weeded before they come up, as well as afterwards. Mr. Evelyn says, the seeds should be picked when they are ready to drop, and that the tenacious glutinous mucilage, that is on the outsides of them, should be rubbed and washed off, which, he says, is of great advantage to cause them to grow. They may also be raised with layers. The timber bears a great price with the cabinet-makers when large, for in-laying, it being the whitest of all hard woods. Besides the common holly, is the variegated or gilded holly, which is much esteemed by

by many, and affords great variety of sorts; it is raised by grafting, or inoculation on young stocks raised from the seed, or otherways, of about four or five years growth: the time for grafting of them being in March, and inoculating or budding in July.

Where you have a good soil, take elder sticks ten or twelve feet long, stick in your bank slopewise each way; it makes the speediest fence of any.

Alder is an extraordinary fence against rivers and streams, and preserves the banks from the water: it is always sending suckers from the lowest roots. It is raised of layers or suckers, and will grow on any boggy or poor land.

When a hedge is grown old, i. e. of about twenty or thirty years growth, and there are old stubs as well as new shoots, the old stubs should be cut sloping off within two or three inches of the ground, and the best and longest of middle size should be left to lay down; and some of the strongest, at the height of five or six feet, according as you design the height of the hedge to be, may be left to serve instead of stakes, and fresh stakes should be put in those places where they are wanting. The hedge should be thinned, so as to leave on the stubs only such shoots as are designed to be of use, that there may be room left to put a spade in between them: the ditch also should be cleansed, and each side of the slope kept as in a new ditch; and where the earth is washed from the roots of the quick, or is hollow, face it anew with so much of the first spit of earth that is dug out of the ditch, as there is occasion for, and lay what is dug out at the second spit on the top of the bank; for if it be laid on the side, or face of the bank, it will slip into the ditch again when wet comes, and also take a great deal of the bank along with it.

In plashing quicks, there are two extremes to be avoided; the first is, laying it too low, and too thick; because it makes the sap run all into the shoots, and leaves the plashes without nourishment, which, with the thickness of the hedge, will kill them.

2dly, it must not be laid too high, because this draws all the sap into plashes, and so causes but small shoots at the bottom, and makes the hedge so thin, that it will neither hinder the cattle from going through, nor from cropping of it.

When the shoot that is designed to be plashed is bent, give it a small cut with a bill, half through, sloping a little downwards, and then weave it about the stakes, and trim off the small superfluous branches that straggle too far out on both sides of the hedges.

If the stubs are very old, cut them quite down, and secure them with good dead hedges on both sides, till the young shoots are got up tall enough to plash, and plant new sets in the void spaces.

In making a hedge, if it be set with crab or apple stocks, it will be proper to leave one standing uncut up, at every thirty or forty feet, on both sides the hedge, if the ground be your own; which being done, they may be so ordered, by pruning or staking, that one may lean into one ground, and the other into another.

These stocks should be pruned up every year, till they are brought out of the reach of the cattle, and then they may be grafted with the red-streak, gennetmoit, or what other fruit you please.

If the stocks be of apple kernels, they may stand ungrafted, and they will yield very good cyder-fruit; but then such stocks as are not grafted will be longer before they bear; and also when you do graft, you may be certain of your kind: but if you find a very natural stock, which, by leaf, shoot, and bud, appears likely, you may try it, and so you may have a new fine fruit; and if you do not like it, you may graft it when you please.

As for the rest of the hedge, when it has shot four or five years, you may lay it to make a fence with, for the doing of which take the following directions:

First, at every laying, to lay down some old plashes; or, if the hedge be thin, young ones; but they must be so laid, as to point with their ends to the ditch side of the bank, the ends being kept low on the bank; by being so ordered, they will the better thicken the bottom of the hedge, and keep up the earth of the bank.

Secondly, to heighten the bank every time you lay earth on it, so as to cover the layers all but the ends, this earth will very much help the quick; and by heightening the banks and deepening the ditch, you will render the fence the better.

Thirdly, not to cut the plashes too much, but just so as they may bend down mellow, not to lay them too upright, as some do, but to lay them near to a level; and by so doing, the sap will the better break out at several places, and not to run so much to the ends, as it will when they lie much upon the slope.

If you have much wood to spare, you may cut up great part of those that grow near the ditch; but then you ought to hang the bank with bushes, to prevent cattle from cropping them the
first

first year: these will shoot strong, secure the hedge, keep the bank, and thicken the bottom of the hedge.

Fourthly, take care to lay the hedge pretty thick, and turn the beard on the ditch side; but you must not let the beard hang uncut; (though it makes a good shew at first) but you must cut off all the straggling boughs within half a foot of the hedge on both sides, and these will cause it to shoot strong at these places, and make the hedge much thicker.

Fifthly, if the bank be high, make the hedge so low that it may just serve for a fence the first year, for it will soon grow higher, and the lower the hedge is made the better the quick will grow, and also the thicker at the bottom; but care must be taken to preserve it from cattle on the field side for the two first years that it is made.

Sixthly, if you would have a good hedge, or fence, you should new lay it once in fourteen or fifteen years, and constantly root out elder, travellers joy (which some call bull-bine,) bryony, &c. and do not leave too many high standards, or pollards in it, though the elm is one of the best; also, no dead wood is to be left in the bottom of the hedges, for that will choke the quick: but if there be a gap, the dead hedge should be made at a distance.

[*To be concluded in our next.*]



ART. VII. *Of Drilling and Horse-hoeing Turnips.*

MR. SYLVAN,

Your giving the following a place in your Magazine will much oblige your humble servant,

J. L.

THE greatest inconvenience, which has been observed in the turnep-husbandry, is, when they are fed off late in the spring, (which is in many places the greatest use of them) there is not time to bring the land in tilth for barley; the loss of which crop is sometimes more than the gain of the turneps: this is entirely remedied by the drilling method; for by that, the land may be almost as well tilled before the turneps are eaten, or taken off, as it can afterwards.

If turneps be sown in June, or the beginning of July, the most experienced turnep-farmers will have no more than thirty to a square perch left in hand-hoeing; and find that when more are left, the crop will be less; but, in drilling the rows at six feet intervals,

intervals, there may be sixty to a perch; and the horse-hoe, by breaking so much more earth than the hand-hoe does, can nourish sixty drilled, as well as thirty are by the sowing method, which has been made appear upon trial; but, I think, about forty or forty-five better than sixty on a perch; and the number of plants should always be proportioned to the natural and artificial pasture which is to maintain them; and sixty turneps on a square perch, at five pounds each, (which is but a third of the weight of the large size of sheep-turneps) make a crop of above eighty quarters to an acre.

When turneps are planted late, (especially upon poor ground) there may be a greater number than when planted early; but they will be much smaller, because they will not have time enough of heat to enjoy the full benefit of hoeing, which would otherwise cause them to grow larger.

There are three manners of spending turneps with sheep, amongst which I do not reckon the way of putting a flock of sheep into a large ground of turneps without dividing it; for in that case the flock will destroy as many turneps in a fortnight, as should keep them well a whole winter.

The first manner now in use is, to divide the ground of turneps by hurdles, giving them leave to come upon no more at a time than they can eat in one day, and so advance the hurdles farther into the ground daily, until all be spent; but we must observe, that they never eat them clean this way, but leave the bottoms and outsides of the turneps they have scooped in the ground. These bottoms people pull up with iron crooks, made for that purpose; but their cavities being tainted with urine, dung, and dirt from their feet, though the sheep do eat some of the pieces, they waste more, and many the crooks leave behind in the earth; and even what they eat of this tainted food, cannot nourish them so well as that which is fresh and clean.

The second manner is, to move the hurdles every day, as in the first; but that the sheep may not tread upon the turneps, they pull them up first, and then advance the hurdles as far daily as the turneps are pulled up, and no farther; by this means there is not that waste made as in the other way; the food is eaten fresh and clean; and the turneps are pulled up with less labour than their pieces can be.

The third manner is, to pull them up, and to carry them into some other ground in a cart, or waggon, and there spread them every day on a new place, where sheep will eat them up clean,

clean, both leaf and root : this is done when there is land not far off, which has more need of dung, than that where the turneps grow, which perhaps is also too wet for sheep in the winter ; and then the turneps will, by the too great moisture and dirt of the soil, spoil the sheep, and in some soils give them the rot, yet such ground will bring forth more and larger turneps than dry land ; and when they are carried off, and eaten on plowed ground in dry weather, and on green-sward in wet weather, the sheep will thrive much better ; and that moist soil, not being trodden by the sheep, will be in much the better order for a crop of corn. And generally the expence of hurdles, and removing them, being saved, will more than countervail the labour of carrying off the turneps.

These three ways of spending turneps with sheep are common to those drilled, and to those sown in the random manner ; but they must always be carried off for cows and oxen ; both which will be well fatted by them, and some hay in the winter : the management of these is the business of a grazier.

All sorts of land, when made fine by tillage, or by manure and tillage, will serve to produce turneps, but not equally ; for chalky land is generally too dry (a turnep being a thirsty plant ;) and they are so long in such dry poor land before they get into rough leaf, that the fly is very apt to destroy them there.

Sand and gravel are the most proper soil for turneps, because that is most easily pulverized, and its warmth causes the turneps to grow faster, and so they get sooner out of the danger of the fly ; and such a soil, when well tilled and horse-hoed, never wants a sufficient moisture, even in the driest weather ; and the turneps being drilled will come up without rain, and prosper very well with the sole moisture of the dews, which are admitted as deep as the pulveration reacheth ; and if that be to five or six inches, the hottest sun cannot exhale the dews thence in the climate of England :

When turneps are sowed by hand, and hoed with a hand hoe, the expence is great, and sometimes the operation not half performed, by the deceitfulness of the hoers, who leave half the land unhoed, and cover it with earth from the part they hoe, and then the grass and weeds grow the faster : besides, in this manner a great quantity of land could not be managed in the proper season.

I drilled upon the level, at three feet intervals ; a trial was made between those turneps and a field of the next neighbour's sown at the same time, whereof the hand-hoeing cost ten shillings per acre, and had not quite half the crop of the drilled,

both being measured by the bushel, on purpose to find the difference.

In the drilled they are more certain to come up quickly ; because in every row, half the seed is planted about four inches deep ; and the other half is planted exactly over that, at the depth of half an inch, falling in after the earth has covered the first half : thus planted, let the weather be never so dry, the deepest seed will come up ; but if it raineth (immediately after planting,) the shallow will come up first : we also make it come up at four times, by mixing our seed, half new and half old, (the new coming up a day quicker than the old :) these four comings up give it so many chances for escaping the fly. it being often seen, that seed sown over night will be destroyed by the fly, when that sown the next morning will escape, & *vice versa* ; or you may hoe-plough them, when the fly is like to devour them ; this will bury the greatest part of those enemies ; or else you may drill in another row, without new-plowing the land.

This method has also another advantage of escaping the fly, the most certain of any other, and infallible, if the land be made fine, as it ought to be : this is to roll it with a heavy roller across the ridges, after it is drilled, which, closing up the cavities of the earth, prevents the fly's entrance and exit, to lay the eggs, hatch, or bring forth the young ones to prey upon the turneps ; which they might intirely devour, if the fly came before they had more than the first two leaves, which, being formed of the very seed itself, are very sweet ; but the next leaves are rough and bitter, which the fly does not love : the rolling disappoints the fly ; but very often it disappoints the owner also, who sows at random ; for it makes the ground so hard, that the turneps cannot thrive, but look yellow, dwindle, and grow to no perfection, unless they have a good hoeing soon after the rough leaves appear ; for when they stand long without it, they will be so poor and stunted, that the hand-hoe does not go deep enough to recover them ; and it is seldom that these rolled turneps can be hand-hoed at the critical time, because the earth is then become so hard, that the hoe cannot enter it without great difficulty, unless it be very moist ; and very often the rain does not come to soak it, until it be too late ; but the drilled turneps, being in single rows with six-feet intervals, may be rolled without danger : for be the ground ever so hard, the hand-hoe will easily single them out, at the price of six-pence per acre, or less (if not in harvest ;) and the horse-hoe will, in those wide intervals, plough at any time, wet or dry ; and, tho' the

the turneps should have been neglected till stunted, will go deep enough to recover them to a flourishing condition.

Drilled turneps, by being no where but in the rows, may be more easily seen than those which come up at random, and may therefore be sooner singled out by the hand-hoe; which is another advantage; because the sooner they are so set out, the better they will thrive.

Three or four ounces of seed is the usual quantity to drill; but, at random, three or four pounds are commonly sown, which, coming thick all over the ground, must exhaust the land more than the other, especially since the sown must stand longer, before the hoers can see to set them out.

The six-feet ridges, whereon turneps are drilled in single rows, may be left higher than for double-rowed crops; because there will be more earth in the intervals, as the single row takes up less.

There is no fixed time for sowing turneps, because that must according to the richness of the land; for some land will bring them as forward, and make them as good, when sown the heggining of August, as other land will, when sown in May; but the most general time is, a little before, and a little after Midsummer.

When turneps are sown too late to have time and sun for attaining to their full bulk, some drill a double row on each six-feet ridge, with a partition of fourteen inches; but in this double row the turneps do not, even at that late season, grow so large as those sown at the same time in single rows; tho' the double row requires double the expence in setting out; and there will be less earth hoed by the breadth of 14 inches of the deepest part of the ridge, and consequently the land will be the less improved for the next crop. We need not to be very exact, in the number or distance we set them out at; we contrive to leave the master-turneps, (when there is much difference in them) and spare such when near one another, leaving the more space before and behind them; but if there be three master turneps too near together, we take the middlemost.

Dry weather does not injure turneps when horse-hoed, as it does sown turneps; the hand-hoe does not go deep enough to keep the earth moist, and secure the plants against the drought; and that is the best season for horse-hoeing, which always can keep the roots moist.

Dung is more useful for turneps, because they have commonly less time to grow than other plants.

ART. VIII. *History of the first Cultivation of Burnet, as Food for Cattle.*

[In a Letter from Sir James Caldwell.]

MR. EDITOR,

WHEN I was in London, (July 1764) I heard of a very extraordinary person with respect to speculative and practical agriculture, and immediately determined to visit him, with a view to make Ireland a sharer in the improvements which England is now reaping from his intelligence and industry.

This person's name is Bartholomew Rocque: he is a native of France, but has lived forty years in England: he is a farmer, and now lives at Walham-Green, a village about three miles south-west of London, lying between Chelsea and Kensington. Here he has lived about twenty years, is become very eminent, and has received premiums from the London Society for his discovery of various kinds of artificial grass, of which I shall give you the best account that my memory can furnish from the many conversations I have had with him.

About four years ago the late Mr. Wych, chairman of the committee of agriculture of the London Society for the encouragement of arts, manufactures, and commerce, came to him, and told him he had been thinking, that, as there are many animals which subsist wholly upon the fruits of the earth, there must certainly be some plant or herb which is fit food for them, that naturally vegetates in winter; otherwise we must suppose the Creator, infinitely wise and good, to have made creatures without providing for their subsistence; and that, in fact, if there had been no such plants or herbs, many species of animals would have perished before we took them out of the hands of nature, and provided for them dry meat, at a season when indigenous plants, having been indiscriminately excluded. under the name of weeds, from cultivated fields, and places set apart for natural grass, green or fresh meat was no longer to be found.

Rocque allowed the force of this reasoning, but said the knowledge of a grass, or artificial pasture, that would vegetate in winter, and produce green fodder for cattle, was lost; at least, that he knew no such plant.

Mr. Wych,

Mr. Wych, however, knowing how very great the advantage would be of discovering a green fodder for winter and early in the spring, as it would in some measure preclude the inconvenience, trouble, and expence, of making hay, and prevent also the distress that happens when this resource fails, which is no uncommon case, wrote to Bern, and also to some considerable places in Sweden, stating the same argument, and asking the same question: his answers to these letters were the same that had been given by Rocque; they allowed that there must be such a plant, but declared that they did not know it.

Mr. Wych then applied again to Rocque, and recommended it to him to search for the plant so much desired, and so certainly existing: Rocque set about this search with great assiduity, and finding that a pimpernel, called burnet, was of very speedy growth, and grew near as fast in winter as in summer, he took a handful of it and carried it into his stable, where there were five horses, every one of which eat of it with the greatest eagerness, snatching it even without first smelling it.

Upon the success of this experiment, he went immediately to London, and bought all the burnet-seed he could get, which was not more than eight pounds, it having been used only in sallads; and he paid for it after the rate of four shillings a pound.

Six of the eight pounds of seed he sowed on half an acre of ground in March, in the year 1761, with a quarter of a peck of spring-wheat, both by hand: the seed being very bad, it came up but thin; however, he sowed the other two pounds the beginning of June upon about six rod of ground: this he mowed in the beginning of August; and at Michaelmas he planted off the plants on about twenty rod of ground, giving each plant a foot every way, and taking care not to bury the heart. These plants bore two crops of seed the year following, the first about the middle of June, the second about the middle of September; but the June crop was the best: the year after, it grew very rank, and produced two crops of seed, both very good. As it ought not to be cut after September, he let it stand till the next year, when it sheltered itself, and grew very well during all the winter, except when there was a hard frost; and even during the frost it continued green, though it was not perceived to grow. In the March following, it covered the ground very well, and was fit to receive cattle.

If the winter is not remarkably severe, the burnet, though
cut

cut in September, will be eighteen inches long in March, and it may be fed from the beginning of February till May: if the cattle are taken off in May, there will be a good crop of seed in the beginning of July. Five weeks after the cattle are taken off, it may be mowed, if that is preferred to its standing for seed. It grows at the rate of an inch a day,* and is made into hay like other grafs.

It may be mown three times in one summer, and should be mown just before it begins to flower. Six rod of ground has produced eleven hundred and fifty pounds at the first cutting of the third year after it was sowed: and in autumn, 1763, Rocque sold no less than three hundred bushels of the seed.

Miller, in his celebrated Botanical Dictionary, says, that burnet is a very hardy perennial plant, and will thrive almost in any soil; but, according to Rocque, the soil in which it flourishes most is a dry gravel; but it should be well manured for a good crop. Lime is very good for this purpose, as the plant requires warmth and salts.

The longest drought never hurts it, for it is always in sap: and I saw a very exuberant and vigorous plant growing from between two bricks in a wall in Rocque's ground, without any communication with the soil; for he had cut away all the fibres of the root that had stretched downward, and penetrated the earth, long before I saw it.

Such were the experiments that were made upon the burnet when it was found to be food for horses; and it afterwards appear, that it was equally fit for cows and sheep, and that they were equally fond of it; but the sheep must not be suffered to crop it too close.

It should be sowed by the broad-cast; and the season for sowing is from February to August. It may be transplanted; but Rocque says, that is not the best method; though, if there happen to be patches where it has not come up well, he advises to fill them up with plants taken from other places where they may be too thick.

The first year care must be taken to keep it clear of weeds; the next year it will choak the weeds, and it may therefore be said to weed itself.

As to the cultivation of this plant, he gave the following general directions.

First,

* Is not this rather too large a calculation? That it is a very quick grower in summer-time, is certain; but we think half an inch a day an allowance large enough, as it will then be about eighteen inches high at the end of the five weeks mentioned above.

First, Trench your ground two spades deep, or three if it will bear it; but take care not to turn up the dead ground.

2dly, Sow it after the rate of twelve pounds to an English acre, and mix no corn with it.

3dly, Before you sow it, harrow the ground well.

4thly, After it is sowed, harrow it with a light harrow, and roll it.

5thly, When the seed is ripe, thresh it between wet and dry, and leave part of the seed in the hay; it will then be as good as corn and hay together.

ART. IX. *To make Pork Hams.*

YOU must take a fat hind-quarter of pork; and cut off a fine ham. Take an ounce of salt-petre, a pound of coarse sugar, and a pound of common salt; mix all together, and rub it well. Let it lie a month in this pickle, turning and basting it every day; then hang it in wood-smoke in a dry place, so as no heat comes to it; and if you keep them long, hang them a month or two in a damp place, so as they will be mouldy, and it will make them cut fine and short. Never lay these hams in water till you boil them, and then boil them in a copper, if you have one, or the biggest pot you have. Put them in cold water, and let them be four or five hours before they boil. Skim the pot well and often, till it boils. If it is a very large one, two hours will boil it; if a small one, an hour and a half will do, provided it be a great while before the water boils. Take it up half an hour before dinner, pull off the skin, and throw raspings finely sifted all over. Hold a red-hot Salamander or fire-shovel over it, and when dinner is ready, take a few raspings in a sieve, and sift all over the dish; then lay in your ham, and with your finger make fine figures round the edge of the dish. Be sure to boil your ham in as much water as you can, and to keep it skimming all the time till it boils. It must be at least four hours before it boils.

This pickle does finely for tongues, afterwards, to lye in it a fortnight, and then hung in the wood-smoke a fortnight, or to boil them out of the pickle.

Yorkshire is famous for hams; and the reason is this: their salt is much finer than in London, it is a large clear salt, and gives the meat a fine flavour. It is by much the best salt, for salting of meat. A deep hollow wooden tray is better than a pan, because the pickle swells best about it.

ART.

ART. X. *To make Beef Hams.*

YOU must take the leg of a fat, but small beef, the fat Scotch or Welch cattle is best, and cut it ham fashion. Take an ounce of bay-salt, an ounce of salt-petre, a pound of common salt, and a pound of coarse sugar, (this quantity for about fourteen or fifteen pounds weight, and so accordingly, if you pickle the whole quarter) rub it with the above ingredients, turn it every day, and baste it well with the pickle for a month: take it out and roll it in bran or saw-dust, then hang it in wood-smoke, where there is but little fire, and a constant smoke for a month; then take it down, and hang it in a dry place, not hot, and keep it for use. You may cut a piece off as you have occasion, and either boil it or cut it in rashers, and broil it with poached eggs, or boil a piece, and it eats fine cold, and will shiver like Dutch beef. After this beef is done, you may do a thick brisket of beef in the same pickle. Let it lay a month, rubbing it every day with the pickle, then boil it till it is tender, hang it in a dry place, and it eats finely cold cut in slices on a plate. It is a pretty thing for a side dish, or for supper. A shoulder of mutton laid in this pickle a week, hung in wood-smoke two or three days, and then boiled with cabbage, is very good.

ART. XI. *To make Veal Hams.*

CUT the leg of veal like a ham, then take a pint of bay-salt, two ounces of salt-petre, and a pound of common salt; mix them together, with an ounce of juniper berries beat; rub the ham well, and lay it in a hollow tray, with the skinny side downwards. Baste it every day with the pickle for a fortnight, and then hang it in wood-smoke for a fortnight. You may boil it, or parboil it and roast it. In this pickle you may do two or three tongues, or a piece of pork.

ART. XII. *To make Mutton Hams.*

YOU must take a hind-quarter of mutton, cut it like a ham, take one ounce of salt-petre, a pound of coarse sugar, a pound of common salt; mix them and rub your ham, lay it in a hollow tray with the skin downwards, baste it every day for a fortnight, then roll it in saw-dust, and hang it in wood-smoke a fortnight; then boil it, and hang it in a dry place, and cut it out in rashers. It does not eat well boiled, but eats finely broiled.



FARMER'S MAGAZINE.

OCTOBER, 1780.

A DISSERTATION *on the Progress and present State of* AGRICULTURE. [Continued.]

THE NETHERLANDS.

THIS title comprehends seventeen provinces, in two great divisions. The Northern containing the seven United Provinces, and the Southern containing the Austrian and French Netherlands. Holland is about 150 miles in length, and about the same in breadth.

These provinces lie opposite to England, at the distance of 90 miles upon the east side of the English channel, and are only a narrow slip of low swampy land, lying between the mouths of several great rivers, and what the industry of the inhabitants has gained from the sea by means of dykes, which they have raised and still support with incredible labour and expence. The air of the United Provinces is therefore foggy and gross, until it is purified by the frost in winter, when the east wind usually sets in for about four months, and their harbours are frozen up. The moisture of the air causes metals to rust, and wood to mould, more than in any other country, which is the reason of their perpetually rubbing and scouring, and the brightness and cleanliness in their houses so much taken notice of. The soil is unfavourable to vegetation, but, by the industry of the inhabitants in making canals, it is rendered fit for pasture, and in many places for tillage. Holland, with all its commercial advantages, is not a desirable country to live in, especially to foreigners. Here are no mountains nor rising grounds, no plantations, purling streams, or cataracts. The whole face of the country, when viewed from a tower or steeple,

has the appearance of a continued marsh or bog, drained at certain distances by innumerable ditches; and many of the canals, which in that country serve as high-roads, are in the summer months no better than offensive stagnated waters.

The rivers are an important consideration to the United Provinces; the chief of which are, the Rhine, one of the largest and finest rivers in Europe; the Maese, the Scheld, and the Vecht. There are many small rivers that join these, and a prodigious number of canals; but there are few good harbours in the United Provinces; the best are those of Rotterdam, Helvoetsluys, and Flushing; that of Amsterdam, though one of the largest and safest in Europe, has a bar at the entrance of it, over which large vessels cannot pass without being lightened.

The quantity of grain produced here, is not sufficient for home consumption; but by draining their bogs and marshes, they have many excellent meadows, which fatten lean German and Danish cattle to a vast size; and they make prodigious quantities of the best butter and cheese in Europe. Their country produces turf, madder, tobacco, some fruit and iron; but all the pit-coal and timber used there, and indeed most of the comforts, and even the necessaries of life, are imported. They have a good breed of sheep, whose wool is highly valued, and their horses and horned cattle are of a larger size than in any other nation in Europe. It is said there are some wolves and wild bears here. Storks build and hatch on their chimneys; but, being birds of passage, they leave the country about the middle of August, with their young, and return the February following. Their river-fish is much the same as ours, but their sea-fish is generally larger, owing perhaps to their fishing in deeper water. No herrings visit their coasts, but they have many excellent oyster-beds about the islands of the Texel, producing very large and well-tasted oysters. Notwithstanding all these inconveniences, the industry of the Hollanders furnishes as great a plenty of the necessaries and commodities of life, and upon as easy terms, (except to travellers and strangers) as they are to be met with in any part of Europe.

The Austrian and French Netherlands are about 200 miles in both length and breadth;

This country belongs to three different Powers; the Austrians, French, and Dutch.

The air of the Netherlands is in some places bad; but in the interior parts it is more healthy and the season in general more settled than in England. The soil and its produce are rich, especially in corn and fruits. They have abundance of pasture; and

and Flanders itself has been reckoned the granary of France and Germany, and sometimes of England. The most barren parts for corn rear far more profitable crops of flax, which is here cultivated to great perfection. Upon the whole, the Austrian Netherlands, by the culture, commerce, and industry of the inhabitants, was formerly the richest and most beautiful spot in Europe, whether we regard the variety of its manufactures, the magnificence and riches of its cities, the pleasantness of its roads and villages, or the fertility of its land. If it has fallen off in latter times, it is owing partly to the neglect of its government, but chiefly to its vicinity to England and Holland; but it is still a most desirable and agreeable country. There are few or no mountains in the Netherlands: Flanders is a flat country, scarcely a single hill in it. Brabant, and the rest of the provinces, consist of little hills and vallies, woods, inclosed grounds, and champaign fields.

G E R M A N Y.

THE empire of Germany, properly so called, is in length above six hundred miles and five hundred broad; is bounded by the German ocean, Denmark, and the Baltic, on the north; by Poland and Hungary, including Bohemia, on the east; by Switzerland and the Alps, which divide it from Italy, on the south; and by the dominions of France and the Low Countries, on the west, from which it is separated by the Rhine, Moselle, and the Maes.

The divisions of Germany, as laid down even by modern writers, are various and uncertain. We shall therefore adhere to those that are most generally received. Germany formerly was divided into the Upper, or southern, and the Lower, or northern. The Emperor Maximilian, predecessor and grandfather to the Emperor Charles V. divided it into ten great circles; and the division was confirmed in the diet of Nuremberg, in 1552; but the circle of Burgundy, or the seventeen provinces of the Low Countries, being now detached from the empire, we are to confine ourselves to nine of those divisions as they now subsist.

Whereof three are in the north, three in the middle, and three in the south.

The northern circles

The circles in the middle

{ Upper Saxony
{ Lower Saxony
{ Westphalia
{ Upper Rhine
{ Lower Rhine
{ Franconia

The southern circles

{ Austria
 { Bavaria
 { Swabia

The climate of Germany, as in large tracts of country, differs greatly, not only on account of the situation, north, east, south, and west, but according to the improvement of the soil, which has a vast effect upon the climate. The most mild and settled weather is found in the middle of the country, at an equal distance from the sea and the Alps. In the north it is sharp; towards the south it is more temperate.

The soil of Germany is not improved to the full by culture; and therefore in many places it is bare and sterile, though in others it is surprisingly fruitful. Agriculture, however, is daily improving, which must necessarily change the most barren parts of Germany greatly to their advantage. The seasons vary as much as the soil. In the south and western parts they are more regular than those that lie near the sea, or that abound with lakes and rivers. The north wind and the eastern blasts are unfavourable to vegetation. Upon the whole, there is no great difference between the seasons of Germany and those of Great-Britain.

The chief mountains of Germany are the Alps, which divide it from Italy, and those which separate Saxony, Bavaria, and Moravia from Bohemia. Many other large tracts of mountains, however, are found in different parts of the empire.

The vast passion which the Germans have for hunting the wild boar, is the reason why perhaps there are more woods and chaces yet standing in Germany than in most other countries. The Heraynian forest, which in Cæsar's time was nine days journey in length, and six in breadth, is now cut down in many places, or parcelled out into woods, which go by particular names. Most of the woods are pine, fir, oak, and beech. There is a vast number of forests of less note in every part of this country; almost every count, baron, or gentleman, having a chace or park adorned with pleasure-houses, and well stocked with game, viz. deer, of which there are seven or eight sorts, as roebucks, stags, &c. of all sizes and colours, and many of a vast growth; plenty of hares, conies, foxes, bears, wolves, and boars. They abound so much also with wild fowl, that in many places the peasants leave them and venison for their ordinary food.

Had the Germans been acquainted with Agriculture, their country would have been the most fruitful of any in Europe. Even in its present, what we may call rude state, provisions are more cheap and plentiful in Germany than in any other country

try perhaps in the world; witness the prodigious armies which the most uncultivated part of it maintained during the late war, while many of the richest and most fertile provinces remained untouched.

The Rhenish and the Moselle wines differ from those of other countries in a peculiar lightness and deterfive qualities, more sovereign in some diseases than any medicine.

The German wild boar differs in colour from our common hogs. Their flesh, and the hams made of it, are preferred by many, even to those of Westmoreland, for flavour and grain. The glutton of Germany is said to be the most voracious of all animals. Its prey is almost every thing that has life, which it can master, especially birds, hares, rabbits, goats, and fawns; whom they surprise artfully, and devour greedily. On these the glutton feeds so ravenously, that it falls into a kind of a torpid state, and, not being able to move, he is killed by the huntsmen; but though both boars and wolves will kill him in that condition, they will not eat him. His colour is a beautiful brown, with a faint tinge of red.

Germany yields abundance of excellent heavy horses; but their oxen and sheep are not comparable to those of England, probably owing to the want of skill in feeding and rearing them. Some parts of Germany are remarkable for fine larks, and great variety of singing birds, which are sent to all parts of Europe.

Germany has vast advantages in point of commerce, from its situation in the heart of Europe, and perforated as it were with great rivers. Its native materials for commerce (besides the mines and minerals we have already mentioned) are hemp, hops, flax, anise, cummin, tobacco, saffron, madder, truffles, variety of excellent roots and pot-herbs, and fine fruits, equal to those of France and Italy. Germany exports to other countries corn, tobacco, horses, lean cattle, butter, cheese, honey, wax, wines, linen and woollen, yarn, ribbons, silk and cotton stuffs, turnery wares in wood, metals, and ivory, goat-skins, wool, timber both for building ships and houses, cannon and bullets, bombs and bomb-shells, iron plates and stoves, tinned plates, steel work, copper, brass-wire, porcelain the finest upon earth, earthen ware, glasses, mirrors, hog's bristles, rum, beer, tartar, smalts, zaffer, Prussian blue, printer's ink, and many other things. Some think that the balance of trade between England & Germany is to the disadvantage of the former; but others are of a different opinion, as they cannot import coarse woollen manufactures, and several other commodities, so cheap from any other country.

The revocation of the edict of Nantes, by Lewis XIV. which

which obliged the French protestants to settle in different parts of Europe, was of infinite service to the German manufactures. They now make velvets, silks, stuffs of all kinds, fine and coarse; linen and thread, and every thing necessary for wear, to great perfection. The porcelain of Meissen, in the electorate of Saxony, and its paintings, exceed that of all the world.

P R U S S I A

Is bounded to the North by part of Samogitia; to the South, by Poland Proper and Masovia; to the East by part of Lithuania; and to the West, by Polish Prussia and the Baltic. Its greatest length is about 160 miles, and breadth about 100.

The air, upon the whole, is wholesome, and the soil fruitful in corn and other commodities, and affords plenty of pit-coal and fuel. Its animal productions are horses, sheep, deer, and game; bears, wolves, wild boars, and foxes. Its rivers and lakes are well stored with fishes; and amber, which is thought to be formed of an oil coagulated with vitriol, is found on its coasts towards the Baltic. The woods furnish the inhabitants with wax, honey, and pitch, besides quantities of pot-ashes.

The present king of Prussia, by the assistance of an excellent police, has brought the commerce and manufactures of this country to a very flourishing state, which is daily improving. The manufactures of Prussia consist of glass, iron-work, paper, gunpowder, copper and brass mills, manufactures of cloth, camblet, linen, silk, stockings, and other articles. The inhabitants export variety of naval stores, amber, linseed, and hempseed, oatmeal, fish, mead, tallow, and caviar; and it is said that 500 ships are loaded every year with those commodities, chiefly from Koningberg.

B O H E M I A

Is about 300 miles in length and 250 broad; the air is not thought so wholesome as the air of Germany in general.

H U N G A R Y

Is about 300 miles in length and 200 in breadth. The air, and consequently the climate, of the southern parts of Hungary, is found to be unhealthful, owing to its numerous lakes, stagnated waters, and marshes; the northern parts being mountainous and barren, the air is sweet and wholesome. No country in the world can boast a richer soil, than that plain which extends 300 miles from Presburg to Belgrade, and produces corn, grass, excellent plants, tobacco, saffron, asparagus, melons, hops, pulse, millet, buck-wheat, delicious wine, fruits of various kinds, peaches, mulberry-trees, chefnuts, and wood: Corn is in such plenty that it sells for one-sixth part of its price in England.

Han-

Hungary is remarkable for a fine breed of horses, generally mouse-coloured, and highly esteemed by military officers, so that great numbers of them are exported. There is a remarkable breed of large rams in the neighbourhood of Presburg. Its other vegetable and animal productions are in general the same with those of Germany, and the neighbouring countries. The Hungarian wines, however, particularly Tokay, are preferable to those of any other country, at least in Europe.

P O L A N D,

Including Lithuania, is about 700 miles in length, and not much short of that in breadth.

The air of Poland is such as may be expected from so extensive but level a climate. In the north parts it is cold, but healthy. The Carpathian mountains, which separate Poland from Hungary, are covered with everlasting snow, which has been known to fall in the midst of summer. Upon the whole, however, the climate of Poland is temperate, and far from being so unsettled, either in winter or summer, as might be supposed from so northerly a situation.

Poland is in general a level country, and the soil is fertile in corn, as appears from the vast quantities that are sent from thence down the Vistula, to Dantzick, and are bought up by the Dutch, and other nations. The pastures of Poland, especially in Podolia, are rich beyond expression: and it is said one can hardly see the cattle that graze in the meadows. Here are mines of silver, copper, iron, salt, and coals; the interior parts of Poland contain forests, which furnish timber in so great quantities, that it is employed in house-building, instead of bricks, stone, and tiles. Various kinds of fruits and herbs, and some grapes, are produced in Poland, and are excellent when they meet with culture, but their wine seldom or never comes to perfection. Poland produces various kinds of clays fit for pipes and earthen-ware. The water of many springs is boiled into salts. The virtues of a spring, in the palatinate of Cracow, which increases and decreases with the moon, are said to be wonderful for the preservation of life; and it is reported, that the neighbouring inhabitants commonly live to 100, and some of them to 150 years of age. This spring is inflammable, and by applying a torch to it, it flames like the subtlest spirit of wine. The flame however dances on the surface, without heating the water; and if neglected to be extinguished, which it may easily be, it communicates itself, by subterraneous conduits, to the roots of trees, in a neighbouring wood, which it consumes; and about 35 years ago, the flames are said to have lasted for three years, before they could be entirely extinguished.

The vegetable productions of Poland are (some of them) peculiar to itself, particularly a kind of manna (if it can be called a vegetable) which in May and June the inhabitants sweep into sieves with the dew, and it serves for food dressed various ways.

The forests of Warsovia or Masovia contain plenty of uri, or buffaloes, whose flesh the Poles powder, and esteem it an excellent dish. Horses, wolves, boars, elks, and deer, all of them wild, are common in the Polish forests; and there is a species of wild horses and asses, that the nobility of the Ukraine, as well as natives, are fond of. A kind of wolf, resembling a hart, with spots on his belly & legs, is found here, and affords the best furs in the country; but the elk, which is common in Poland, as well as in some other northern countries, is a very extraordinary animal. The flesh of the Polish elk forms the most delicious part of their greatest feasts. His body is of the deer make, but much thicker and longer; the legs high, the feet broad and cloven, the horns large, rough, and broad, like a wild goat's. Naturalists have observed, that upon dissecting an elk, there was found in its head some large flies, with its brains almost eaten away; and it is an observation sufficiently attested, that in the large woods and wildernesses of the north, this poor animal is attacked; towards the winter chiefly, by a larger sort of flies, that, through its ears, attempt to take up their winter quarters in its head. This persecution is thought to affect the elk with the falling-sickness, by which means it is taken, which would otherwise prove no easy matter.

Poland produces a creature called bohac: it resembles a guinea-pig, but they seem to be the beaver kid. They are noted for digging holes in the ground, which they enter in October, and do not come out, except occasionally for food, till April: they have separate apartments for their provisions, lodgings, and their dead; they live together by 10 or 12 in a herd.

S W I T Z E R L A N D.

This country is about 260 miles in length and one hundred broad, and is divided into 13 Cantons, which contain about two millions of hardy brave and industrious inhabitants.

This being a mountainous country, lying upon the Alps, the frosts are consequently bitter in the winter, the hills being covered with snow, sometimes all the year long. In summer, the inequality of the soil renders the same province very unequal in its seasons; on one side of those mountains the inhabitants are often reaping, while they are sowing on another. The vallies, however, are warm and fruitful, when well cultivated,

as

as they generally are. The country is subject to rains and tempests, for which reason public granaries are every where erected to supply the failure of their crops. The water of Switzerland is generally excellent, and often descends from the mountains in large or small cataracts, which have a pleasing effect.

Sheep and cattle are the chief animal productions of this country; corn and wood, and some wine, with pot-herbs of almost every kind, are likewise found here. The produce, however, of all those articles is no more than sufficient for the inhabitants, who are too far removed from water-carriage to be profited by the stately timber that grows in their woods. They have vast plenty of game, fish and fowl.

[To be continued.]

ART. II. *Farther Extracts from, and Remarks on, MR. YOUNG'S Tour in Ireland.*

[Continued from page 270.]

MR. Young's observations are by no means confined merely to agriculture, or rural affairs; his work is occasionally embellished with matter of more general entertainment. The sketches he gives of the common people, who on many accounts are much discriminated from those of the same rank on this side the channel, are frequently curious and amusing.

Dancing is very general among the poor people, almost universal in every cabbin. Dancing masters of their own rank travel through the country from cabin to cabin, with a piper or blind fidler; and the pay is six-pence a quarter. It is an absolute system of education. Weddings are always celebrated with much dancing; and a Sunday rarely passes without a dance; there are very few among them who will not, after a hard day's work, gladly walk seven miles to have a dance. *John* is not so lively; but then a hard day's work with him is certainly a different affair from what it is with *Paddy*. Other branches of education are likewise much attended to, every child of the poorest family learning to read, write, and cast accounts.

There is a very ancient custom here, for a number of country neighbours among the poor people, to fix upon some young woman that ought, as they think, to be married; they also agree upon a young fellow as a proper husband for her; this determined, they send to the fair one's cabbin to inform her, that on the Sunday following *she is to be horsed*, that is, carried on men's backs. She must then provide whisky and cyder for a treat,



a treat, as all will pay her a visit after mass for a hurling match. As soon as she is *horsed*, the hurling begins, in which the young fellow appointed for her husband has the eyes of all the company fixed on him; if he comes off conqueror, he is certainly married to the girl; but if another is victorious, he as certainly loses her, for she is the prize of the victor. These trials are not always finished in one Sunday, they take sometimes two or three; and the common expression when they are over is, that *such a girl was goal'd*. Sometimes one barony hurls against another, but a marriageable girl is always the prize. Hurling is a sort of cricket; but instead of throwing the ball in order to knock down a wicket, the aim is to pass it through a bent stick, the ends stuck in the ground. In these matches they perform such feats of activity, as ought to evidence the food they live on to be far from deficient in nourishment.

The following passage will, we apprehend, leave upon the mind an impression somewhat similar to that which is felt in contemplating the remains of a venerable tower, that after having withstood for ages the attacks of hostility and violence, and the depredations of time, at length crumbles insensibly into ruin.

'At Clonella, near Castle Rea, lives O'Conner, the direct descendant of Roderick O'Conner, who was King of Connaught 6 or 700 years ago; there is a monument of him in Roscommon church, with his scepter, &c. I was told as a certainty, that this family were here long before the coming of the Milesians. The possessions formerly so great are reduced to 3 or 400l. a year, the family having fared in the revolutions of so many ages much worse than the O'Neils and O'Briens. The common people pay him the greatest respect, and send him presents of cattle, &c. upon various occasions. They consider him as the prince of a people involved in one common ruin.'

The Tartar Chief Macdermot presents a somewhat pleasanter image:—

'Another great family in Connaught is Macdermot, who calls himself Prince of Coolavin; he lives at Coolavin in Sligo, and though he has not above 100l. a year, will not admit his children to sit down in his presence. This was certainly the case with his father, and some assured me even with the present Chief, Lord Kingsborough, Mr. Ponsonby, Mr. O'Hara, Mr. Sandford, &c. came to see him, and his address was curious: "O'Hara! you are welcome: Sandford, I am glad to see your mother's son: (his mother was an O'Brien) as to the rest
" of

"*of ye come in as ye can.*" Mr. O'Hara of Nymphsfield is in possession of a considerable estate in Sligo, which is the remains of great possessions they had in that country; he is one of the few descendants of the Milesian race.

Mr. Young mentions a very singular circumstance in natural history, which we should be glad to see satisfactorily accounted for. Perch, says he, appeared in all the lakes of Ireland, and in the Shannon, at the same time, namely, about seventeen years ago. The naturalists will in all probability find this problem the bow of Ulysses. Mr. Young relates another fact also, which is equally extraordinary: 'One caution, says he, speaking of mules, should be used in relation to their food. If wheat-straw is cut into chaff and given, it will kill them; the late Bishop of Elphin lost all his mules by it.' We should rather suppose this accident was owing to some other circumstance which was unnoticed at the time.

Of the uncommon fertility of Ireland there are some instances that almost stagger belief. In one place we read of an acre producing ten loads of hay; in another, of the same quantity of land producing 16 loads. These, no doubt, are one horse car loads. In another place, however, he is more definite, where he speaks of five tons of hay being collected from a single acre.

Mr. Young seems to have made it his business to collect very accurate information on the subjects of manufactures and fisheries: we are sorry to observe, that the same cause which retards the improvement of agriculture, operates equally with respect to these.

From this political survey, as it may be called, Ireland appears to possess many important natural advantages, but she is in a great measure prevented from making use of them by want of a sufficient capital. It is to be hoped, however, that freedom of trade will open new sources of wealth, and not only enable her to enlarge her own capital, but also find employment for the superabundant capital of her more opulent neighbours.

Were we to draw conclusions from such *data* as this Tour furnishes us with, we might affirm, that Ireland, notwithstanding the encouragement that is held out by the Dublin Society (one of the most respectable in Europe), as well as by the Irish Parliament, can never become eminent for its agriculture, if corn alone is to be the object of cultivation. The natural humidity of the climate, which renders it frequently necessary to kiln-dry their wheat, a process not only expensive, but prejudicial also to the quality of the grain, will for ever be an obstacle that the farmer must have to contend with. In a climate where

humidity predominates, and where frost is not severe, nature seems to point out those plants, which are valuable for their leaf, their stem, or their root, as the proper objects of cultivation, in preference to grain, which requires more sun and a drier atmosphere. Hence we should suppose that tobacco, though we do not find our neighbours have yet availed themselves of the late act for permitting its cultivation, is capable of making a very valuable branch of Irish husbandry. Should this plant become a staple commodity, it would probably be the interest of Ireland to grow no more corn than would come in the course of tillage for turneps and flax: the one being absolutely necessary for the improvement of their sheep and cattle, the other for the supply of their linen manufactures.

[To be continued.]

ART. III. *Mode of Husbandry in Kent; in a Letter to the Secretary of the Bath Agriculture Society.*

SIR,

IT is with great pleasure that I have read the Letters and Papers on Agriculture, &c. lately published by you under the direction of your truly patriotic society; and it gives a more sensible pleasure to me, as a native of your county, to see, thro' its interest and patronage, a spirit of improvement prevailing, where in my younger days it was so much wanted; inasmuch that when I was first, about 50 years ago, transplanted into this county, where cultivation, according to Mr. A. Young's account, is carried to a higher pitch than in any part of England, I was really astonished to see such fine crops, year after year, without fallows, and without turnips or clover, &c. on lands in themselves not superior, perhaps far inferior, to those in Taunton-Dean, and many other parts of Somerset,—a county, if I am not mistaken, that for natural fertility, take it all together, is equal at least to any in the kingdom; and had it so good a market as London, (as we have near us) to vend its produce in, would in a few years from your encouragement be placed on a footing with the best.

Most of your letters from your intelligent correspondents are very valuable, and I have only to lament that so little attention has seemingly been paid to your applications by the several Sheriffs of the kingdom, who might perhaps have contributed somewhat to the common treasury, as every county may have somewhat peculiar almost to itself, in some respect or other, worthy the public attention.—And to this end I have often

often wished, that the society of arts, &c. in London, had, from its first institution, sent gentlemen properly qualified and liberally supplied, not only over the various parts of this, but many of the neighbouring kingdoms, for information, as somewhat perhaps may be learned from places where cultivation is at the lowest ebb.

As to the improvement of poor and middling lands, your papers seem to me to give full satisfaction and instruction; but were your finances equal to the expence, may I be permitted to hint, for the advancement of your richest lands, that if a proper person were sent into Leicestershire to view the amazing things done there by a Mr. Bakewell in improving the breed of sheep, bullocks, and horses for draught, and into Kent for the benefit of the corn farmer, the expence would not, I flatter myself, be thrown away, were it only to see the various utensils we have to lessen expences.

And in some measure to promote this, the gentlemen of your excellent society will, I hope, excuse a stranger for communicating to them through you, the method that has long been in use in the richest parts of this county, where for near 50 years I never saw the necessity of a fallow or turnips. The order of their crops is this:

1. Beans, or Pease. 2. Wheat. 3. Barley, or Oats.

And generally they have great crops of each sort, as I myself have had on my glebe belonging to my living. And this is principally owing to the management of their beans, or pease, which however are not so common as beans, the latter being a more certain crop. And I the more readily take the liberty of offering my sentiments to you on this subject, as none of your letters give the least hint of putting in corn in rows, a method this of all others the most beneficial, except a slight account of drilling peas from Mr. Pavier near Taunton, which account of his however is no small confirmation of what may be done, were our method pursued.

In the first place then, our land after barley is ploughed up in October and November in little ridges ten inches wide, or balks as we call them, to lay them dry and receive the benefit of the winter's frost and snow; soon after Christmas, as the season will allow, these little ridges are split with the plough, the land laid flat and level, and after harrowing ploughed deep. This done, a strait furrow about 4 inches deep, the direct contrary way that the plough went, is struck with a light two-wheeled plough drawn by two horses, on the beam of which is placed a hopper to receive the seed, about three bushels to the acre, which

which, by turning of a small wheel affixed to the side, deposits the seed at equal distances in the furrows, which are about 20 inches asunder, and afterward covered by a light harrow, and 3 acres are thus put in in a day.

After they are out of the ground 2 or 3 inches, a light harrow is again in dry weather drawn over them, to loosen the ground if dry and bound. Immediately after this, they are hand hoed in the rows with a two-inch hoe, running it between each bean to loosen the ground and cut up the weeds, at 3s. per acre; the intention of this is not to loosen the whole space between row and row, but only 2 or 3 inches from the bean. After this they are horse-hoed by one horse, a man and a boy, who will run over three acres in a day. When a fresh crop of weeds appears, they are hand-hoed again at 2s. 6d. per acre, then horse-hoed a second time, and after that earthed up pretty high by a horse as before with an instrument for that purpose, before they are got too high. And when too high, boys are commonly employed to go between the rows, and pull out what the horse has left.

By this method, all the weeds are effectually destroyed or not suffered to form their seeds, and fresh earth is constantly drawn to nourish the crop, which is seldom less than 7 quarters per acre of common beans, and often more of the Windsor sort. After harvest, the sooner the better, the land is run over with a plough, to which is affixed a thin share 12 inches broad to tear up the roots of the beans, &c. which are harrowed together and carried into the farm-yard to make dung, which is by all means sought after, and straw of all kinds is carefully given to lean stock, old horses, and hogs, in the farm-yard in winter, and none permitted to be sold off the premises, nor is any burnt as is usual in the west. In the spring this is carried out into a field intended for beans, and placed on heaps of good fresh mould taken from roads, hedges, ponds and waste places, &c. and once or twice turned and mixed with the dung in the summer. About 70 or 80 cart loads of this per acre is commonly spread on the land, each cart-load equal to half a chaldron of coals at least.

After one ploughing, the wheat is sown, which from the former careful process needs little or no weeding in the summer, unless some careless neighbour shall furnish the fields with seeds, of thistles &c. My crops of wheat on my glebe have been seldom less than 5 quarters per acre Winchester measure.

The following or last year of the order of crops is this. Barley is sown after 3 or 4 ploughings, the first a slight and superficial

cial one, the second deeper, & so on. This is pulverised as much as possible, by heavy harrows and heavy rolls, as much as four large horses can well draw, when stiff and churlish, or by lighter as the season and the nature of the land require.—And to sum up all, our method is reducible to four short rules. Dung well, clean well, plough deep, and sow in good seasons.

Beans and barley we look on as meliorating crops.

This is what I would chiefly say at present. However, I would not on this occasion willingly omit to acquaint you with the method our farmers all have of keeping their horses for draught, for they use such entirely, and work them constantly in all weathers when they can stir out of doors, and they stand this constant work well, by a method of keeping them, which it is said is almost peculiar to part of this county, which is, that they live entirely out of the barn, all the year, except in summer, when they are soiled with green clover or tares, (i. e. vetches) in the stable, and seldom turned out, to make as much dung as possible.

Our corn is all cast with a scupper in the barn's floor made large for that purpose, not winnowed out of doors; by this method all the chaff is carefully preserved for the horses, which live on this and cut straw and corn, given them by little and little at a time by the boy that drives them, the man, after his work is done in the fields, cutting the straw with an instrument for the purpose.

When they come from work, the boy's business is to give them cut straw and chaff, cleaning them between while; and when they begin to tire with eating this alone, which they will do in an hour or so, a little corn is mixed with it, flung up for this purpose till eleven at night, the man going to bed after supper at nine, and rising at three, the boy at five. So that the horses are not left above four hours in the twenty-four, which four hours are allotted for their sleep. The common allowance for four stout horses is a sack of oats and a bushel of beans per week, without any hay or fodder throughout the year.

As to hops, with which we abound, I fear they will not succeed in the west in any great quantity, for want of poles; and if you had plenty of them, the great abundance of rain you have, in much greater proportion than what falls here, would perhaps render it not worth your while even on a small scale. Even here we succeed best in dry summers. They root deep, and find sustenance when other crops are burnt up. And to this reason possibly it might have been owing that a person from Farnham, many years ago settled at Crewkern in your county, was obliged to give up a plantation he had raised there.

If I have not expressed myself in any particular as clearly as I ought, I will, on notice from you, endeavour to explain myself, and if any other article of agriculture or planting, viz. hops, or raising wood for hop poles, or training up trees of various kinds for timber, in which I have had some experience, and have taken some notice, I can in the least promote the ends of your institution; you may freely command the best services of

East-Mulling, Kent.

Your most humble servant,

D— H—.

ART. IV. *Practical Observations on the present prevailing and alarming disorders in the STOMACH and INTESTINES.*

[By Dr. ROWLEY, of Harley-street, Cavendish-Square.]

THE origin of these disorders may be difficult to determine. It may be probably owing to the free use of fruits or vegetables, something infectious in the water, the sudden change of the weather; the noxious qualities of the air, receiving sudden cold by the evening damps after a warm day; wearing too light a dress for the season, and thus checking perspiration.

In these complaints, some have a purging without much pain or vomiting. Some have vomitings, without gripings and purgings. Others violent vomitings of yellow or green bile with excruciating pains, but without any purging. The pains excite a fever, which, when the distemper is violent, is soon succeeded by great lassitude and dejection of the spirits; and when rough treatment has been adopted, as powerful emetics, drastic purges, or where opiates have been injudiciously administered, a sudden mortification of the intestines, in some instances, has put a period to the patient's existence.

These violent irritations in the stomach and bowels may in general be considered as the *salutary efforts of Nature forcing from the constitution some injurious particles of matter*, by which many escape violent fevers; it is therefore the physician's duty to proceed with great gentleness in his practice, lest the wise intentions of nature be frustrated. The cure consists in co-operating with the natural effort in expelling the irritating, acrid humour, by carrying the causes of the disorder downwards by mild laxatives, and sheathing the stomach and intestines with an artificial mucus, the natural one being in some measure destroyed by the violent acrimony of the disease.

The cure of the purging without much pain or vomiting.

An abstinence from fruits, vegetables, &c. is necessary in this and most other complaints in the bowels.

Take of magnesia and lac sulphur each half a dram, mix them together; to be taken twice or thrice a day in any convenient liquid, as rice gruel, barley-water, &c. for two or three days.

In this and every stage of the disorders of the bowels the following may be used as common drink, after the first or second day:—Take of fine powdered chalk one ounce; gum Arabic a quarter of an ounce; let them be boiled in a quart of water, with half an ounce of beaten cinnamon; the whole to be strained through a hair sieve.

When the purging has continued a few days, the tincture of Japan earth, the bitter tincture, and sweet elixir of vitriol, equal parts, may be mixed together. Take two spoonfuls in three spoonfuls of camomile tea, two or three times in the day.

The simple purging ceases frequently of itself in a day or two, in which medical assistance is unnecessary.

The treatment of the vomiting, purging, and griping pains, or a vomiting and griping without a purging.

Vomits should not be used unless the patient be very robust, or in particular cases; if however, the vomiting should be violent, a little weak mutton, veal, or chicken broth, or oil and water, drank warm, may be useful.

Whoever will consider the anatomical structure of the stomach and intestines, and reflect on their inflammatory state, their extreme nervous sensibility, that the mucus furnished, destined to defend them, is probably destroyed, that the fine villous coat itself may be abraded, would certainly not prescribe a vomit but with the utmost caution. If such remedies should not relieve, they may do irreparable mischief. We should reflect, that the bile is never in the stomach until forced there from the intestine called duodenum; Vomits only increase the disease, as most bilious patients must have experienced; they give a temporary ease by discharging the bile for the present, but lay the foundation of a fresh accumulation of that disagreeable fluid. For these reasons, I have in general rejected vomits when the stomach is in such a state of irritation, and have considered them likely to increase the violence of the disease, which of itself is already too violent. I have endeavoured, by gentle means, to carry the offending matter out of the stomach, through the intestines, to be discharged in the natural manner.

In the vomiting and purging, if the symptoms be violent, and the patient of a full habit, repeated bleedings are necessary; these must be regulated by the strength, &c.

We should then attempt to allay the irritation in the stomach by some gentle laxative. The following has been successful:

Take of sal polychrest two drams; simple mint water three ounces; tincture of senna one ounce. Mix them together, and take two table spoonfuls every two or three hours.

The common saline mixture is useful; to four ounces of which may be added one ounce and half of the tincture of senna. Two table spoonfuls may be taken every three or four hours. This is better for females, and persons of delicate constitutions, than the former. To each dose may be added from thirty to sixty drops of the tinctura sacra, or about six grains of species hiera picra. The compound powder of gum tragacanth may be taken in the dose of a dram with from twenty to forty grains of sal polychrest three or four times in the day.

The lac sulphur and magnesia may be taken, half a dram each, three times in the day, especially if what comes off the stomach be of a sour nature.

The following oily mixture is useful to lubricate the intestines, and alleviate the pain, when the stomach can bear it easily:

Take of oil of almonds, or good sweet oil, two ounces; mucilage of gum Arabic half an ounce, or the yolks of two eggs, and a little powdered loaf sugar; gradually mix two ounces of water to these in a marble mortar. Take a table spoonful, or more, every two hours.*

The griping pains should seldom be alleviated by opiates, lest the noxious matter be locked up, and the patient destroyed by acquiring a little temporary ease. Opiate clysters, for the same reasons, except in particular cases, are improper. If, however, any opiate should be necessary, 20 grains of mithridate, going to rest, is superior to any other remedy, and is very useful.

To assist, however, and dispose the intestines to pour forth their contents downwards, clysters of fat mutton broth, or a decoction of chickens guts, the common decoction for clysters, joined with fresh cold-drawn linseed oil, or olive oil, may be repeated every three or four hours, and where hardened loeces are in the intestines, oftener.

If the disorder should have arisen from sudden cold, a bath for the feet and legs may be made of about six quarts of warm water, and half a pint of vinegar. This may be used for a quarter of an hour every six hours; it admirably allays the feverish heat, produces a beneficial perspiration, and is an excellent resistor and corrector of putrefaction. Vinegar fumes are good.

* This prescription is taken from the pamphlet, called "Medical advice to the army and navy." To this mixture may be added manna, half an ounce.

Fomen-

Fomentations, made of rosemary, bay leaves, and camomile flowers, may be boiled in water, to which may be added brandy, or spirits of wine: these may be applied externally to the abdomen every two hours, with flannels wrung out as hot as possible.

A tenesmus, or an inclination to evacuate the feces, often happens, when only a mucus is discharged with a distressing pain; if the purging has been of some days standing, and it be supposed the acrid matter is nearly discharged, twenty grains of mithridate, forty drops of spirits of nitre dulcis, and three table-spoonfuls of mint water may be taken three times in the day. If the patient be weak, sixty drops of the sweet elixir of vitriol may be used instead of the sweet spirit of nitre.

Hoffman's anodyne liquor may be taken, a tea spoonful at a dose, in strong camomile tea, cold, three or four times in the day.

A little oil, and liquid laudanum, mixed and applied to the orifice of the rectum, on lint, will often give ease.

In a violent griping and vomiting, without purging, the following may be useful, in conjunction with the clysters:—

Dissolve an ounce of marga, and half an ounce of Glauber's salt, in four ounces of water. Two table spoonfuls may be taken every four hours.

All mucilaginous diet should be used in these disorders, as sago, rice, salop, jellies of hartshorn, calves feet, and broths with rice, &c. and all watery diet avoided.

The violent watery purgings attending children, with fevers, convulsions, &c. which mostly arise from obstructed perspiration, have been cured by the chalk drink already mentioned; by frequently bathing the feet in warm milk and water, and bran and warm water. I have recommended likewise the following mixture, a pap spoonful to be taken three or four times a day:

Take of the chalk drink four ounces, magnesia two scruples, powdered salt nitre one scruple, dissolved in the liquid.

Godfrey's Cordial, or any sort of opiate, should not be given to children.

These are the methods by which a great number of patients have been lately treated with success.

ART. V. *Advantages resulting from Small Farms, and those of the most profitable Size described.*

[From Mr. KENT's Hints to Gentlemen of Landed Property.]

EVERY speculative Englishman, who travels through the *Austrian Netherlands*, is astonished at the great population of that country, and at the sight of the markets, which are plentiful beyond description. Upon enquiring into the internal

state, and regulation of the country, he finds that there are no large farms, no class of men who pass under the character of gentlemen-farmers, acquiring large fortunes merely by superintending the business of farming; but that the whole country is divided into much smaller portions than land is with us, and occupied by a set of laborious people, who, in general, work for themselves, and live very much upon a footing of equality.

This seems a presumptive proof, that agriculture, when it is thrown into a number of hands, becomes the life of industry, the source of plenty, and the fountain of riches to a country; but that monopolized, and grasped into few hands, it must dishearten the bulk of mankind, who are reduced to labour for others instead of themselves; must lessen the produce, and greatly tend to general poverty.

I shall not attempt wholly to account for the amazing, increased price of provisions with us. There are, undoubtedly, many causes which contribute to it; but it is very evident that no single cause effects it, so much as the destructive practice which has prevailed, for near half a century back, of demolishing small farms. This absurd custom, which is not without its advocates, draws its birth from ill-digested calculations; is attended with great cruelty to individuals; and ends in considerable private loss, and public calamity.

The specious inducements are, to avoid trouble, to save expences in repairs, and to secure the rent by having more capital tenants.

Granting these arguments the utmost weight they deserve, they will appear very inconclusive, and unsatisfactory.

With respect to trouble, those who manage their own property have their own reward and satisfaction in all they do. And a steward, or agent, ought to think nothing a trouble which is conducive to the good of his principal's estate.

The saving in repairs seems, on the first view, to carry greater plausibility; but when all subsequent consequences are duly investigated, it will be found very inadequate to the loss which will be sustained in the end.

There is no possibility of forming an exact estimate of the expence of keeping an estate in repair. It varies greatly in the different price of labour and materials, and still more in the different skill, and attention, which is bestowed by the person who has the care and direction of the work. But from great experience, and attention, I have observed, that large farms being once put in good repair, may be kept so, upon an average one with another, at about seven, and small farms at about ten
per

per cent. (fire and tempests except) and if we extend it to eleven, upon small farms, for their greater proportion of accident, the buildings being more numerous, we shall be sure to make a calculation that will not deceive us.

Admitting this, there appears to be a saving, by large farms, of forty pounds a year, upon an estate of one thousand pounds a year. But, on the other hand, it must be allowed by every candid person, that small farms let every-where for, at least, fifteen per cent. more than large farms; and that industrious tenants upon these small farms are enabled to give this difference, by doing the chiefest part of the work themselves; by their greater frugality in living; and by availing themselves of a variety of little advantages, which the great farmer will not stoop to pick up. Therefore after deducting the four per cent. saved upon repairs, from the fifteen per cent. difference in the scale of rent, it appears that there is an actual loss of eleven per cent. or one hundred and ten pounds a year upon every thousand pounds a year, and so in proportion for a greater or less estate. As to the better payment of the rent, there are always industrious and safe tenants enough to be gotten, if care be taken, and proper encouragement given.

The landlord indeed is sometimes in a situation from which he cannot easily extricate himself. His buildings, by degrees, being diminished, for want of a little timely care and charge, he finds himself in a manner obliged to let his property in large lots, sometimes perhaps contrary to his inclination; and is thereby deprived of the advantage, he would otherwise have had, in a greater choice of tenants. But, whether this inconvenience descended to him, or has been created by him, it is his duty and interest to remedy it as soon as possible. For, if his farms be small, he will have many more offers, because smaller capitals will be required to stock them; but if his farms be large, the number of good tenants, possessed of money enough to stock them, will be very few, comparatively speaking; and these few will have it more in their power to effect combinations, and keep down the real value of land, which is often the case in many parts of England.

Upon these accounts, not to mention others, the calculation seems totally erroneous, which supposes the balance of interest to the landlord to be in favour of large farms. And motives of a different kind are not wanting to discountenance their extension.

Those who contribute towards the destruction of small farms can have very little reflection. If they have, their feelings are not

not to be envied. Where this has been the practice, we see a vast number of families reduced to poverty and misery, the poor rates much increased, the small articles of provision greatly diminished in quantity and number, and consequently augmented in price.

A poor widow, left with a young family, will struggle very hard to keep her children from the parish, when she is in possession of a small farm, or a dairy, and will teach them the way to be industrious betimes; but if she be deprived of the means of support, her spirits are broken, and she and her children sink at once into poverty, and become burthensome to themselves and the public. This is too commonly the case; for as soon as the little schools of industry are grasped into the hands of an overgrown, rapacious farmer, the former occupiers are at once all reduced to the state of day-labourers: and when their health or strength fails, there is but one resource; they and their children are thrown upon the parish. This has undoubtedly swelled the rates, to their present enormous height, more than any cause whatever.

The mechanic, and manufacturer, next feel the blow. The market wears a different face. The vast number of poultry, the quantity of pork, and a variety of other small articles of provision, are no longer supplied in their former abundance. The great farmer raises no more of these, than are necessary for his own consumption; because his wife and children will not take the trouble and care of them, or condescend to attend the market, like the wives and children of little farmers. His views are formed upon a large scale, and every thing flows from him in a wholesale channel. And as no man can execute any very extensive business so well as that which lies in a more contracted space, he must, when he has a great deal upon his hands, neglect many small objects, partly for want of time, and partly because they appear trivial in their nature; and many trifles added together make a large deficiency upon the whole.

The case is different upon the small farm. Here the tenant's great dependance rests upon trifles merely, and therefore it behoves him to make the most of every thing. As he has no great space to superintend, it lies under his eye at all times and seasons; he seizes all minute advantages; cultivates ever obscure corner; generally accumulates more manure in proportion to his land; and considering his animal as well as vegetable produce, has likewise in that a greater proportion.

He does great part of his work with his own hands; and every man works more chearfully, zealously, and diligently for himself,

self, than for another. His wife and children are likewise of great service to him, especially if his gains depend much upon a dairy. And, in general, the children of these little farmers prove the most useful people the country produces. The girls make the best dairy-maids; the boys the best gentlemen's bailiffs, the best head-men in large farms, the best persons to superintend and manage cattle, and in a word, the most regular servants, in most capacities.

[To be concluded in our next.]

ART. VI. Approved Receipts in Farriery.

A Diuretick Ball for the Grease.

TAKE of Venice turpentine, sal prunella, flower of brimstone, each one ounce; make them into a ball. This is a very moderate ball, and should be washed down with a quart of ale, that has had one pound of onions steeped in it all night. You may give this once in four days, and by repeating it, it will clean a horse's legs wonderfully, and in some cases will do without physick. But to make them thoroughly clean, I would advise purging after it. To a coach-horse you may give it for two or three days successively.

A comfortable Drink for a Cold.

Take flower of brimstone, anniseeds, diapente, of each two ounces; of saffron in powder, a dram and a half; venice treacle two ounces; honey three ounces; make them into a drink with a quart of ale, and give it warm in the morning fasting, adding 2 ounces of sweet oil just before; keep the horse warm all day.

For the Mallenders.

Take of red precipitate an ounce; of vitriol two ounces; of Egyptiacum three ounces; mix them together, and make an ointment; and after clipping off the hair, roll on the size of a nutmeg.

Balls to carry off the remainder of the Humours, if the Legs swell after Physic.

Take common antimony, flower of brimstone, diapente, of each a pound; moisten it with a sufficient quantity of honey, and cold-drawn linseed oil, just enough to make the powders roll. Give a ball of this every morning, for five or six days. If this do not do, rowel him.

Liniment for a Sprain in the Back Sinews.

Take oil of turpentine and the best spirit of wine, of each an ounce and a half; of oil of spike an ounce; of oil of origanum a dram

a dram and a half: mix them well together, and rub some into the part.

An Ointment for a Shoulder Sprain.

Take nerve oil and hog's-lard of each a quarter of a pound; two spoonfuls of tar, three quarters of an ounce of sublimate mercury, finely powdered, ten cantharides powdered. Put the nerve oil and hog's-lard into an earthen pan over the fire till they are just boiling; then add the mercury and flies, and let them just boil; and then take the mixture off the fire, and stir it till it is quite cold.

Take the bigness of a walnut and rub it well into the part with your hand; let the horse stand three days without stirring. The more it swells the better, if the horse walks well after three days rest; then rub his shoulder with train oil, stroking down the hair with your hand. If the horse is not cured with the first dressing, at three days end use it again.

A Blistering Charge.

Take black pitch and rosin, of each two ounces; venice turpentine, mastic, euphorbium, and cantharides in powder, of each an ounce. Incorporate these properly, but mix the last when almost cold; then add two drams of aqua-fortis very gently, and you may add one ounce of dragon's blood.

A useful Ball for Horses that have flying Humours.

Take common antimony, flower of brimstone, anniseeds, and liquorice, of each four ounces, all in fine powder, and made into balls with four ounces of honey; of oil of anniseeds four drams; of linseed oil cold-drawn a sufficient quantity to make into balls.

An Ointment for the Spavin.

Take of venice turpentine, two ounces; of hog's-lard one ounce; of spirit of turpentine, half an ounce; cantharides and Euphorbium, of each half an ounce; both in fine powder; set them over the fire and stir them together till they are cold.

A Poultice for Greasy Heels.

Take honey, hog's-lard, and turpentine, of each a pound; of rice-meal a sufficient quantity; simmer them all together over the fire, and then put a pound of beaten allum, fine sifted, to the rest when cold. Spread it on a cloth, and apply it to the heels, and let it lie on twenty-four hours.

For a Prick with a Thorn.

Take violet leaves, and agrimony, of each half a handful; boar's-grease or fresh grease a sufficient quantity; and make a poultice with barm.



T H E
FARMER'S MAGAZINE.

NOVEMBER, 1780.

A DISSERTATION on the Progress and present State of
AGRICULTURE. [Continued.]

N O R W A Y.

THE climate of Norway is exceedingly different, according to the difference of situation. In the eastern parts, the ground is generally covered with snow, and the cold, which sets in about the middle of October, is intense, till the middle of April; during which months the waters are froze to an incredible thickness; but at Bergen the winter is so moderate, that the seas are always navigable both to mariners and fishermen, except in creeks and bays, which extend far enough up the country to be affected by the keen north-east winds from the land. In Finmark, a part of Norway, situated in the frigid zone, the cold is so great, that very little of the country has ever been explored.

In proportion to the extreme cold of this climate is its heat in summer, occasioned by the reflection of the sun's rays from the sides of the mountains, and the shortness of its duration below the horizon. The warmth in the vallies is in general so exceedingly great, that barley is sown and fit to be housed in the short space of six weeks.

The air in Norway is generally pure and salubrious, and so dry in the midland parts of the country, that meal may be kept for many years without being worm-eaten, or otherwise damaged; but on the sea-coast the vapours and exhalations render it moist, and not so healthy, except to people in consump-

tions, with whom it is supposed to agree best. In summer there is, on the coast of Bergen, a kind of regular trade wind; for in the forenoon the sea is agitated by a westerly breeze, which continues till midnight, at which time the land-breeze blows from the east, and continues till about ten in the morning.

The mountains in Norway are exceedingly barren, but in the vallies the soil is very fertile. It generally consists of black mould, sand, loam, chalk and gravel, lying over each other in unequal strata, and sometimes in three or four successions; but the black mould, which is usually uppermost, is very fine and mellow, and adapted to the nourishment of all sorts of vegetables. Clay is found in different parts of the country, and in many places are prodigious large swamps, particularly one near Leefoe, in the diocese of Christianland, over which a wooden causeway is extended near a mile, to prevent passengers or animals from falling in; for were such an accident to happen, they must inevitably sink and perish.

L A P L A N D.

During the summer the sun in Lapland never sets, and in the winter never rises; but, in this dreary season, there is such a constant revolution of dawn and twilight, the moon shines so clear, and the aurora borealis is so strongly reflected from the white surface of the earth covered with snow, that the inhabitants never cease their ordinary occupations of hunting, fishing, &c.

The two seasons of spring and autumn are not known in this country, so that the transition is from the intense cold of winter to the extreme heat of summer. Vegetation is equally sudden: and, as if by miracle, every thing is springing fresh and green in the very place which, a week before, was covered with frost and snow.

The soil of this country might be considerably improved by industry, it being, in some places, naturally rich; and the Swedes have tilled and manured pieces of ground which since bear excellent crops of rye; but the Laplanders themselves are entirely ignorant of agriculture. Most part of the land, however, is full of flint-stones and rocks, whereby it is rough and uneven, which renders it useless.

D E N M A R K.

The air is not so piercing cold in Denmark as it is in some other parts of Germany situated much farther to the southward, being here tempered by the vapours of the sea, which surrounds it almost in every part. These vapours also greatly mitigate the

the heats of summer. But there is here neither spring, nor autumn. A sudden transition from cold to heat, and from the sultry weather of summer to the rigours of winter, alternately succeed each other; so that, properly speaking, two seasons only are known in Denmark. The soil, as in all other countries, is various; but principally consists of the sandy and clayey; the former abounds in the islands, and the latter on the continent. The mountains in general, at least near their summits, are barren; but the valleys fertile.

The Inhabitants of Denmark and Norway had originally a strong propensity to piracy, which has always been observed in people bordering upon the sea, when they are not restrained by civilization and good laws. Custom must necessarily have made the ocean familiar to them, and inured them to its storms. Having no agriculture, breeding but few cattle, and finding but a scanty resource from the chase, in a country covered with ice and snow, they could have no strong attachment to their native land. The facility with which they built their ships, which were nothing more than rafts coarsely put together for the purpose of sailing along the coasts, enabled them to go to all parts, to land their forces, to plunder, and to reembark. Piracy was to them what it had been to the first heroes of Greece, the road to glory and fortune; an honourable profession, which consisted in a contempt of all danger. This idea inspired them with invincible courage in their expeditions, sometimes under the joint command of different chiefs, and sometimes divided into as many armaments as nations. These sudden attacks, made in a variety of places at the same time, left only to the inhabitants of the coasts, which were but ill defended in consequence of their being under a bad government, the dreadful alternative either of being massacred, or giving up all their property to redeem their lives.

This propensity to plunder was a natural consequence of the savage life of the Danes and Norwegians, and of the rough and military education they received; but it was more particularly the effect of the religion of Wodin. That victorious impostor improved, if we may be allowed to say so, the natural fierceness of those nations by his sanguinary tenets. He ordered that all the implements of war should be deified. The most sacred engagements were confirmed by these instruments which they so highly valued. A lance set up in the middle of a plain was the signal for prayer and sacrifice. Wodin himself at his death was ranked among the immortal gods, and was the first deity of those horrid regions, where the rocks and woods were stained

and consecrated with human blood. His followers thought they honoured him by calling him the god of armies, the father of slaughter, the destroyer of mankind, the promoter of discord. The warriors, when they went to battle, made a vow to send him a certain number of souls, which they devoted to him. These souls were the right of Wodin. It was the general belief, that he appeared in every battle, either to protect those who fought valiantly, or to mark out the happy victims he reserved for himself. That these followed him to the regions of bliss, which were open to none but warriors. The people ran to death, and to martyrdom, to obtain this reward. This belief increased their natural propensity to war, till it grew to enthusiasm, and to a religious thirst for blood.

Christianity overthrew all the ideas resulting from such a system. Its missionaries endeavoured to bring their proselytes to a sedentary life, that they might be fit to receive their instructions. They gave them a disgust for their roving life, by suggesting to them other means of subsistence. They were so fortunate as to inspire them with a love of agriculture, and more especially of fishing. The great plenty of herrings which then came in shoals to their coasts, afforded them an easy means of procuring food. When they had set apart a sufficient quantity of these fish for their own use, in order to preserve it, they bartered the remainder for salt. This intercourse was encouraged at its rise by one common faith, new prospects, mutual wants, and great safety. Such a total revolution ensued, that since the conversion of the Danes and Norwegians, not a single instance is to be found in history, of their expeditions and depredations.

S W E D E N.

What has been said of Norway and Lapland is equally applicable to Sweden; there is an uninterrupted day-light for several weeks in summer, which is proportionably defective in winter. Spring and autumn are not known; winter is so intensely cold, that the inhabitants frequently lose their limbs, particularly their noses, by the severe frost; and the summer is violently hot. The soil is in general very sterile, but there are large spots, between the hills, which, if properly cultivated, would yield very good corn.

The inhabitants formerly understood very little of agriculture, the only thing wanting towards their lands producing excellent crops of corn, so that at present they do not grow sufficient for home consumption; but agriculture being now greatly promoted, the scene will probably soon be changed, and the vallies

of Sweden smile with golden harvests. In summer a beautiful Verdure, interspersed with flowers, overspreads the fields; currants, strawberries, raspberries, with other fruits of the same nature, are produced spontaneously. Great plenty of pot-herbs and roots are reared in the kitchen-gardens. In dry seasons, melons are brought to perfection, and the orchards abound in cherries of different kinds, and all of excellent flavour. Peaches, nectarines, and apricots are very scarce here; and apples, pears, and plumbs, are not brought to any degree of perfection.

R U S S I A.

This empire, which, like all others, rose from small beginnings, is become in process of time the largest in the world. Its extent from east to west is 2200 leagues; and from south to north about 800.

Many of the people of this vast empire never had any form of government, and have none to this day. Those who by violence, or from particular circumstances, have obtained the rule over the rest, have always been actuated by Asiatic principles, and have been oppressors or arbitrary tyrants. The only point in which they have conformed to the customs of Europe, has been the institution of a peerage.

These are undoubtedly the chief causes which have prevented the increase of the human race in that immense country. By the survey taken in 1747 there appeared but 6,646,300 persons who paid the poll-tax; and in these were comprehended all the males from the infant to the oldest man. Supposing the number of women to be equal to that of men, there will appear to be 13,292,780 slaves in Russia. To this calculation must be added the classes of men in the empire who are exempt from paying this shameful tax; the military, who amount to 200,000 men; the nobility and clergy, who are supposed to amount to the like number; and the inhabitants of the Ukraine and Livonia, computed at 1,200,000. So that the whole population of Russia does not exceed 14,92,780 persons of both sexes.

It would be as needless as it is impossible, to number the people who rove about those vast deserts. As these hords of Tartars, Siberians, Samoides, Laplanders and Ostiaks, cannot contribute to the wealth, strength, or splendor of a state, they are to be reckoned of little or no consequence in the account. The population being small, the revenues of the empire cannot be considerable. When Peter I. came to the crown, the taxes brought in but little more than a million sterling; he raised them

them to near three millions. Since his death they have not greatly increased, and yet the people are sinking under a burden which their strength, enervated by despotism, is unable to support.

Every circumstance seems to call upon Russia to provide a remedy against this want of population and wealth. The only effectual one is agriculture. It would be needless to encourage it in the northern provinces; nothing can thrive in those frozen deserts. The scattered inhabitants of this inhospitable climate will never be supplied with any kind of food and raiment except what they can procure from birds, fish, and wild beasts, nor will they ever have any thing besides these to pay their taxes with.

Further from the north, nature begins to wear a milder aspect, and the country is more populous, and more capable of vegetation; yet throughout an immense extent of territory there are no marks of plenty, from the want of men and sufficient means for the cultivation of the land. The soil will become sufficiently fertile, if agriculture meets with reward and encouragement from the wisdom of government. The Ukraine deserves particular attention.

That spacious region, which has belonged to the Porte and to Poland, and is now a part of the Czar's dominions, is perhaps the most fruitful country in the known world. It supplies Russia with most of her home consumption, and articles of trade; and yet she does not receive the twentieth part of what it might be made to produce. The Cossacks, who inhabited that country, have almost all perished in destructive wars. Some attempts have been made to replace them by Ostiaks, and Samoides; but it has not been considered, that in blending men so small and deformed with others of a tall, robust, and valiant race, the former would only serve to make the latter degenerate. It would be very easy and practicable to give encouragement to the Moldavians and Walachians to settle there, as they profess the same religion as Russia, and consider it as the seat of the Greek empire.

Nothing would be more conducive to cultivation than the working of the mines. Some are to be met with in several provinces; but they are numerous in Siberia, though it is a low country, and the soil is moist and marshy. The iron that is dug out of these mines is better than in any other part of Russia, and equal to that of Sweden. The working of them would employ a number of men, and furnish excellent implements of husbandry to a set of miserable slaves, who are compelled to dig a hard and stubborn soil with instruments of wood.

Besides these iron mines, there are also others which contain those precious metals that are so eagerly and so universally coveted, and which are to be found in no part of the country except Siberia. The silver mines near Argun have long been known, and others, both of silver and gold, have lately been discovered in the country of the Baskirs. It would be prudent for some nations to neglect and stop up these sources of wealth; but that is not the case with Russia, where all the inland provinces are so poor, that they are scarce acquainted with those signs that have been universally agreed upon to answer every article of commerce.

The trade which the Russians have opened with China, Persia, Turkey and Poland, consists principally in furs, such as ermine, sables, white wolves and black foxes skins, which all come from Siberia. Some skins that are remarkably fine, which have very long glossy hair, of a beautiful colour, or happen to be particularly pleasing to the buyer, sell at a most extravagant price. These branches of commerce might become more considerable, and be extended to other objects.

But the greatest demand for the produce of the country will always be on the side of the Baltic. It seldom passes through the hands of the Russian merchants. They commonly want skill, stock, credit, and liberty. The import and export of all commodities is transacted by foreign houses.

No country is so happily situated for extending its commerce. Almost all its rivers are navigable. Peter the Great improved this natural advantage by the assistance of art, and ordered canals to be cut to join those rivers together. The most important of them are finished; others are not quite completed, and some are only planned. Such is the grand project of joining the Caspian sea to the Euxine, by digging a canal from the Tanais to the Wolga.

Unfortunately these means which render the circulation of all commodities so easy in the interior parts of Russia, and so much facilitate an intercourse with all parts of the globe, are made useless by those restraints which are not to be surmounted by industry.

The government have reserved to themselves the privilege of buying and selling the most valuable productions of the country; and as long as this monopoly continues, trade will not be carried on with any degree of honesty or spirit. The abolition of this destructive monopoly would contribute to public prosperity, but that alone would not be sufficient, without the reduction of the army.

Agriculture was little known and less practised in this vast empire till the reign of Peter the Great, under whose encouragement and influence this, among other arts and sciences, was brought to some tolerable degree of perfection; but even now honey and wax form two of the chief articles in a Russian farm, and by these alone a peasant is frequently enriched.

The warmer provinces of Russia produce wheat, oats, barley, rye, flax, hemp, pasture for cattle, rhubarb, and tobacco, together with a variety of herbs and fruits, particularly melons. The famous zoophyte, or animal plant, called by the Moscovites bonnaret, or lunobkin, was long imposed upon the world as a vegetable animal, resembling a lamb, with a skin of white curled wool; but it is now known to be an ingenious fiction of the inhabitants to deceive the Turks, who will not wear the skin of any animal. This fraud is practised in the following manner; when a sheep is near yearning, they open her belly, and taking out the lamb, slay it, and extend the skin on the grass; where, by the help of the dew and sour milk, they render it prodigiously thin, soft, smooth, and as white as snow. In this state they offer it to the Turks for sale, as a vegetable production; and the infidels, supposing it to be really such, purchase these skins at a very high price. They are also worn, and greatly esteemed by the nobility of Russia.

[To be continued.]

ART. II. *Advantages resulting from Small Farms, and those of the most profitable Size described.*

[Concluded from page 311.]

HAVING said thus much of large and small farms; I shall venture to describe the sizes, which I think would be most conducive to public and private benefit. And in doing this, I wish to avoid an extreme; for though a reduction be essentially necessary, it ought not to be made upon too low a scale; because I am convinced, that the nature of our soil will not admit of that *universal plan* of farms so low as twenty and thirty acres, which subsist in *Flanders*. For though it be our interest to imitate them, I wish not to copy them exactly. It is undoubtedly proper and beneficial to a country, that farms should vary in their size, as much as possible; but in my opinion, which I deliver with deference, the highest ought not to exceed

exceed a hundred and sixty pounds a year. But though there should be some of these, to promote emulation, to reward particularly-industrious men, and to employ a middling *capital*; yet their number should be inconsiderable, in proportion to the number of smaller ones. As I have mentioned an hundred and sixty pounds as the yearly value of the highest farms, I think it right that none should be under thirty pounds; and that from thirty to fourscore, the number ought to be much greater than of the largest sort; to enable industrious servants, who have saved their wages, or whose good conduct entitles them to credit, to establish themselves, oftner than they do, in business; and likewise to afford settlements for the children of greater farmers to begin the world with. Farms- varied in their size, between these lines, would have an excellent effect, as they would assist and tally with each other, more than they now do; for they would have, almost every one, somewhat of a different object in view. Many of the smallest farms would breed cattle to more advantage than they could fat them; and others would fat them with more convenience than they could breed them.

Upon an estate of one thousand pounds a year, I wish to see something like the following proportion: One farm of 160/. one of 120/. one of 100/. two of 80/. two of 60/. two of 50/. three of 40/. and four of 30/. each. Here would be sixteen farms, upon a thousand pounds a year, which would be a profitable division to an owner, and to the public. But, instead of this, the generality of estates of 1000/. a year do not support a third part of sixteen families. And I will venture to assert, that the poor rates will be much higher in the latter than in the former mode of allotment; because a great many families, which would get a decent livelihood upon the farms of 30/. 40/. and 50/. a year, come to the parish, as I have before observed, when they are deprived of this method of supporting themselves.

If large estates were divided, in a manner somewhat similar to the preceding plan, it would be a means of crushing another real grievance, which at present subsists, *viz.* the exorbitant price put upon land, by the owners of small estates. A great farmer often lets a small bargain, which he has picked up in the same parish where he rents a large estate himself, at the proportion of one-third more than what he gives his own landlord. If these little places were in greater plenty, and let by gentlemen of fortune at only fifteen, or even twenty per cent. more than their large farms, the more inconsiderable owners of estates would not be able to obtain their present exorbitant terms; but, while those places are so few in number, people

who are in absolute want of them, must give whatever is asked for them; and the rent is often so high, that industry itself cannot get a livelihood upon them.

The better regulation of this important concern affords an extensive field, in which gentlemen of fortune may laudably exercise their talents of every kind; and, upon reflection, they must be convinced, that it is the number of useful inhabitants, that stamps a high value on land, which has no intrinsic value in itself; and that when these inhabitants decrease, the land must proportionably sink in value. Their interest therefore is inseparably connected with the comfort and prosperity of the people, where their estates are situate; and when they lend an hand to the depopulation of a country, they sink, at the same time, the value of their own property.

There are, however, two very material points to be attended to, by every person, whose humanity and liberal mind may induce him to adopt this plan for the regulation of his property.

The one is, to make choice of industrious tenants; such as have been bred up in farm-houses or country-business from their infancy; whose hands have been accustomed to labour. There are always enough of these to be found. But great care must be taken, not to accept of idle fellows, who have been bred to little trades. Such people are very desirous of getting into small farms, and wanting the judgment and industry which the others have, generally ruin themselves, and bring these little places into disrepute.

The other point is, to contract old buildings, in proportion to the size of the farm; and when new erections are made, to build upon a small, suitable scale; for too much building augments the expence of repairs considerably, and does the tenant no real kindness.

I shall quit this subject, with an anxious wish, that the destructive practice of engrossing farms, may be carried no farther; and as the state already given to plenty, and population has greatly affected the prosperity of this country, I hope some reparation will be made for the injury sustained.

*Extracts from, and Remarks on, Mr. YOUNG'S TOUR
in IRELAND.*

[Continued from Page 300.]

MR. Young's Work, it is to be observed, is divided into two Parts. In one, the minutes of his journey are registered simply as they arose; in the other, they are digested and

and methodized, so as to bring the principal corresponding articles of information into the same point of view. It is this latter part which is now under consideration. The subject is divided into 24 sections; the first treats of the extent of Ireland; the second, of the soil and face of the country; the third, of the average rental. From various deductions Mr. Young makes, it appears, that rents in Ireland are to those of England as two to five.

From the next section we learn, that the products in wheat are as nine to twelve; and in barley and oats, as seven to eight or nine.

In the section which follows, and which is a very important one, the state of the Tenantry comes under consideration. In Ireland, as in many parts of Scotland, Gentlemen of fortune let their estates to one man, who is called the middle man; he re-lets, to a profit rent, to the occupying tenant. This system, which is not without its defenders and advocates, oppressive and ruinous as it is, Mr. Young reprobates in the strongest and most pointed terms, deducing a great part of the misery and wretchedness of the common people in Ireland, and, indeed, of the kingdom in general, from this prolific source. Those who have estates upon such tenure will do well to give this section an attentive perusal; as also that which follows it, on the labouring poor.

On this head Mr. Young observes, that 'such is the weight of the lower classes in the great scale of national importance, that a traveller can never give too much attention to every circumstance that concerns them; their welfare forms the broad basis of public prosperity; it is they that feed, clothe, enrich, and fight the battles of all the other ranks of a community; it is their being able to support these various burthens without oppression, which constitutes the general felicity; in proportion to their ease is the strength and wealth of nations, as public debility will be the certain attendant on their misery. Convinced that to be ignorant of their state and situation in different countries, is to be deficient in the first rudiments of political knowledge, I have upon every occasion made the necessary enquiries, to get the best information circumstances would allow me. What passes daily, and even hourly, before our eyes, we are very apt entirely to overlook; hence the surprizing inattention of various people to the food, clothing, possessions, and state of the poor, even in their own neighbourhood. Many a question have I put to gentlemen upon these points, which were not answered without having recourse to the next cabin; a source of information

the more necessary, as I found upon various occasions, that some gentlemen in Ireland are infected with the rage of adopting *systems* as well as those of England; with one party the poor are all starving, with the other they are deemed in a very tolerable situation, and a third, who look with an evil eye on the administration of the British government, are fond of exclaiming at poverty and rags, as proofs of the cruel treatment of Ireland. When truth is likely to be thus warped, a traveller must be very circumspect to *believe*, and very assiduous to *see*.'

Speaking of their provision, and their manner of subsistence, he remarks, that 'the food of the common Irish, potatoes and milk, have been produced more than once as an instance of the extreme poverty of the country, but this I believe is an opinion embraced with more alacrity than reflection. I heard it stigmatized as being unhealthy, and not sufficiently nourishing for the support of hard labour; but this opinion is very amazing in a country, many of whose poor people are as athletic in their form, as robust, and as capable of enduring labour, as any upon earth. The idleness seen among many when working for those who oppress them, is a very contrast to the vigour and activity with which the same people work when themselves alone reap the benefit of their labour. To what country must we have recourse for a stronger instance than lime carried by little miserable mountaineers thirty miles on horses back to the foot of their hills, and up the steeps on their own? When I see the people of a country, in spite of political oppression, with well-formed vigorous bodies, and their cottages swarming with children; when I see the men athletic, and their women beautiful, I know not how to believe them subsisting on an unwholesome food.

'At the same time, however, that both reason and observation convince me of the justice of these remarks, I will candidly allow, that I have seen such an excess in the laziness of great numbers, even when working for themselves, and such an apparent weakness in their exertions when encouraged to work, that I have had my doubts of the heartiness of their food. But here arise fresh difficulties; were their food ever so nourishing, I can easily conceive an habitual inactivity of exertion would give them an air of debility compared with a more industrious people. Though my residence in Ireland was not long enough to become a perfect master of the question, yet I have employed from twenty to fifty men for several months, and found their habitual laziness or weakness so great, whether working by measure or by day, that I am absolutely convinced 1s. 6d. and even 2s. a day in Suffolk or Hertfordshire much cheaper than

than sixpence halfpenny at Michellstown; it would not be fair to consider this as a representation of the kingdom, that place being remarkably backward in every species of industry and improvement; but I am afraid this observation would hold true in a less degree for the whole. But is this owing to habit or food? Granting their food to be the cause, decides very little against potatoes, unless they were tried with good nourishing beer instead of their vile potations of whisky. When they are encouraged, or animate themselves to work hard, it is all by whisky, which, though it has a notable effect in giving a perpetual motion to their tongues, can have but little of that invigorating substance which is found in strong beer or porter; probably it has an effect as pernicious as the other is beneficial. One circumstance I should mention, which seems to confirm this; I have known the Irish reapers in Hertfordshire work as laboriously as any of our own men, and living upon potatoes, which they procured from London, but drinking nothing but ale. If their bodies are weak, I attribute it to whisky, not potatoes; but it is still a question with me whether their miserable working arises from any such weakness, or from an habitual laziness. A friend of mine always refused Irishmen work in Surry, saying his bailiff could do nothing but settle their quarrels.

‘ But of this food there is one circumstance which must ever recommend it; they have a bellyfull, and that let me add is more than the superfluities of an Englishman leave to his family: let any person examine minutely into the receipt and expenditure of an English cottage, and he will find that tea, sugar, and strong liquors, can come only from pinched bellies. I will not assert that potatoes are a better food than bread and cheese; but I have no doubt of a bellyfull of the one being much better than half a bellyfull of the other; still less have I, that the milk of the Irishman is incomparably better than the small beer, gin, or tea, of the Englishman; and this even for the father how much better must it be for the poor infants; milk to them is nourishment, is health, is life.

‘ If any one doubts the comparative plenty, which attends the board of a poor native of England and Ireland, let him attend to their meals; the sparingness with which our labourer eats his bread and cheese is well known; mark the Irishman’s potato bowl placed on the floor, the whole family upon their hams around it devouring a quantity almost incredible; the beggar seating himself to it with a hearty welcome; the pig taking his share as readily as the wife; the cocks, hens, turkeys, geese, the cur, the cat, and perhaps the cow — and all, partaking of the same dith,

dish. No man can often have been a witness of it without being convinced of the plenty, and I will add the chearfulness, that attends it.'

- After considering the situation of the Irish poor with respect to some other circumstances attendant upon their condition, he proceeds to a matter of very serious import, and which seems to call loudly for redress. The nature of this grievance will be best learned from his own words:

'Before I conclude this article of the common labouring poor in Ireland, I must observe, that their happiness depends not merely upon the payment of their labour, their clothes, or their food; the subordination of the lower classes, degenerating into oppression, is not to be overlooked. The poor in all countries, and under all governments, are both paid and fed, yet is there an infinite difference between them in different ones. This enquiry will by no means turn out so favourable as the preceding articles. It must be very apparent to every traveller through that country, that the labouring poor are treated with harshness, and are in all respects so little considered, that their want of importance seems a perfect contrast to their situation in England, of which country, comparatively speaking, they reign the sovereigns. The age has improved so much in humanity, that even the poor Irish have experienced its influence, and are every day treated better and better; but still the remnant of the old manners, the abominable distinction of religion, united with the oppressive conduct of the little country gentlemen, or rather vermin of the kingdom, who never were out of it, altogether bear still very heavy on the poor people, and subject them to situations more mortifying than we ever behold in England. The landlord of an Irish estate, inhabited by Roman Catholics, is a sort of despot who yields obedience, in whatever concerns the poor, to no law but that of his will. To discover what the liberty of a people is, we must live among them, and not look for it in the statutes of the realm; the language of written law may be that of liberty, but the situation of the poor may speak no language but that of slavery; there is too much of this contradiction in Ireland; a long series of oppressions, aided by many very ill-judged laws, have brought landlords into a habit of exerting a very lofty superiority, and their vassals into that of an almost unlimited submission; speaking a language that is despised, professing a religion that is abhorred, and being disarmed, the poor find themselves in many cases slaves even in the bosom of *written* liberty. Landlords that have resided much abroad are usually humane in their ideas, but the habit of tyranny

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naturally contracts the mind, so that even in this polished age, there are instances of a severe carriage towards the poor, which is quite unknown in England.

* A landlord in Ireland can scarcely invent an order which a servant, labourer, or cottar, dares to refuse to execute. Nothing satisfies him but an unlimited submission. Disrespect, or any thing tending towards sauciness, he may punish with his cane or his horsewhip with the most perfect security; a poor man would have his bones broke if he offered to lift his hand in his own defence. Knocking down is spoken of in the country in a manner that makes an Englishman stare. Landlords of consequence have assured me that many of their cottars would think themselves honoured by having their wives and daughters sent for to the bed of their masters; a mark of slavery that proves the oppression under which such people must live. Nay, I have heard anecdotes of the lives of people being made free with without any apprehension of the justice of a jury. But let it not be imagined that this is common; formerly it happened every day, but law gains ground. It must strike the most careless traveller to see whole strings of cars whipt into a ditch by a gentleman's footman to make way for his carriage; if they are overturned, or broke in pieces, no matter, it is taken in patience; were they to complain, they would perhaps be horsewhipped. The execution of the laws lies very much in the hands of justices of the peace, many of whom are drawn from the most illiberal class in the kingdom. If a poor man lodges a complaint against a gentleman, or any animal that chuses to call itself a gentleman, and the justice issues out a summons for his appearance, it is a fixed affront, and he will infallibly be *called out*. Where *MAN-NERS* are in conspiracy against *LAW*, to whom are the oppressed people to have recourse? It is a fact, that a poor man having a contest with a gentleman must—but I am talking nonsense, they know their situation too well to think of it; they can have no defence but by means of protection from one gentleman against another, who probably protects his vassal as he would the sheep he intends to eat.

* The colours of this picture are not charged. To assert that all these cases are common, would be an exaggeration; but to say that an unfeeling landlord will do all this with impunity, is to keep strictly to truth: and what is liberty but a farce and a jest, if its blessings are received as the favour of kindness and humanity, instead of being the inheritance of *RIGHT*?

* Consequences have flowed from these oppressions which ought long ago to have put a stop to them. In England, we have

have heard much of whiteboys, steelboys, oakboys, peep-of-day boys, &c. But these various insurgents are not to be confounded, for they are very different. The proper distinction in the contents of the people is into Protestant and Catholic. All but the whiteboys were among the manufacturing Protestants in the North. The whiteboys Catholic labourers in the South: from the best intelligence I could gain, the riots of the manufacturers had no other foundation, but such variations in the manufacture as all fabrics experience, and which they had themselves known and submitted to before. The case, however, was different with the whiteboys; who being labouring Catholics, met with all those oppressions I have described, and would probably have continued in full submission, had not very severe treatment in respect of tythes, united with a great speculative rise of rents about the same time, blown up the flame of resistance; the atrocious acts they were guilty of made them the object of general indignation; acts were passed for their punishment, which seemed calculated for the meridian of Barbary; this arose to such a height, that by one they were to be hanged under certain circumstances without the common formalities of a trial, which, though repealed the following sessions, marks the spirit of punishment; while others remain yet the law of the land, that would, if executed, tend more to raise than quell an insurrection. From all which it is manifest, that the gentlemen of Ireland never thought of a radical cure from overlooking the real cause of the disease, which in fact lay in themselves, and not in the wretches they doomed to the gallows. Let them change their own conduct entirely, and the poor will not long riot. Treat them like men who ought to be as free as yourselves; put an end to that system of religious persecution, which for seventy years has divided the kingdom against itself. In these two circumstances lies the cure of insurrection; perform them completely, and you will have an affectionate poor, instead of oppressed and discontented vassals.

‘A better treatment of the poor in Ireland is a very material point to the welfare of the whole British empire. Events may happen, which may convince us fatally of this truth—If not, oppression must have broken all the spirit and resentment of men. By what policy the government of England can for so many years have permitted such an absurd system to be matured in Ireland, is beyond the power of plain sense to discover.’

[To be continued.]

ART. IV. *Accidents to which Cattle and Crops are liable.*

[Continued from page 304.]

Of preserving water for cattle in seasons of drought.

WHILE the crop suffers by the want of rain, the stock of the farmer will be endangered by the drying up of the common reservoirs of water: the utmost care is therefore to be taken to preserve what there naturally is; and to obtain more from other sources when that no longer serves.

The common watering places for cattle, where there is not the advantage of brooks and rivers, are certain pits deeper or shallower, dug purposely, or on other occasions, which receive the rain of the wet months from the higher ground, and preserve it during summer. These are so essential a part of the farmer's concern, that they must never be neglected.

Let him take care to clean them at proper times, that there may always be a due cavity or depth for receiving the full quantity of water. The mud thrown out of them will pay the labour, so it is doubly wrong to neglect it.

Let him examine whether they be well situated, and consider whether they be of sufficient bigness. If they are not in the best places, let him have others dug where they should be; and if they be well placed, but too small, let them be sufficiently enlarged.

The observation of one season, especially if it be a dry year, will inform him how to judge in this particular.

When the pits are well placed, and of due size, let him observe how they hold the water. If they become dry in the time when they are most wanted, let him look into the cause, and grudge no price in, every way, fitting them for the purpose; for there is no proportion between this expence and that which must lie upon him to supply his cattle from other resources when they are dry.

Two ways there are of a pond's losing its water, and they are equally mischeivous, but equally within the reach of remedy. The water may be lost through the bottom, or evaporated from the surface, or both may conspire to drain the pond, and then there is no hope of its remaining long in a condition of service.

Let the farmer, when he digs a new pit or pond, provide against both these accidents; and when he sees an old one fail, let him examine whether one or the other, or whether both, be in the cause; and apply his remedy accordingly. Let him

observe how those ponds are conditioned that hold water best, and imitate by art what he sees in nature. When he casts his eyes about in a dry summer, he shall see many of the largest ponds altogether dry; and find in the field many a small hole well supplied. Some old fallow or other such tree, grows at the edge of it, and under this the water keeps quiet, cold, and fresh, in the greatest heats. Let him examine the bottom in these places, and he will find it clay; or if otherwise, a coat of stiff mud covers the proper soil, and answers the same purpose. This shews that a sound bottom and a covered surface are the two great articles for the preserving of water. Therefore let him, in all new ponds, clay the bottom well, unless they be dug in natural clay; and in all old ones, that lose their water by its sinking, repair their bottoms, or coat them altogether fresh. If a good clay be used for this purpose, and careful people employed to work it down, the remedy is absolute, for a bottom of this kind will hold as well as one of lead.

When the bottom is taken care of, so that no water can sink; the next attention is to be employed on evaporation. The sun dries up ponds very much; and the winds more. This is less obvious, but equally true. In the salt pits in France, where they evaporate sea water for making of bay salt, they find one day's sun, with a brisk wind, takes off more of the water, than three days of the same bright sun in a calm.

The same precaution that defends the water from one of these, preserves it from the other; this is the sheltering it at the edges. Let the farmer keep in mind the old fallow which he sees over the pond that retains the water in its hollow, while others are dry. This is nature's method, and this he should imitate. Let him plant all about his new made or new bottomed pond, except in one place, which is to be left free for the cattle to come down to the water; or if it be in common to two fields, which is a very good practice, let him make two such openings. Let all the rest be planted with any of the trees that will thrive in a wet soil; but of these none is better than the kind already named, the fallow, for it grows quick, and its leaves do not give any ill taste to the water. The boughs of these trees, as they grow, should be made to stretch and meet from the two sides, over the deepest part of the pond. The sun will thus be kept off, and the wind will have no power. The water will be kept in, and will be clearer than when it is disturbed by every blast. As none of it will be lost, there are very few summers in which drought will be able to effect it.

If there be any where, in the adjoining ground, a spring, that

that should always be brought in, & a good conveyance made for the waste water; the consequence of this will be, that there will be a constancy of fresh water, and yet the ground will be kept dry. The frequent rains with us make our people neglect the care of these reservoirs of water too much; but in other countries they are extremely nice and curious about it; and if we took their example, many of the disagreeable consequences of drought would be prevented. When the farmer makes a new pond, or new clays the bottom of an old one, let him be careful to do the work perfectly, for if there be the least defect where the water can make its way out, nothing will do but new working over the whole.

For a new pond, one coat of clay, of eight inches well ramm'd, and another of six inches, covered with rough stones, is the best method. For the new bottoming an old pond, a single coat of clay, and the covering of stones, will answer the purpose very well and very securely.

As the common ponds will easily be exhausted in a season of drought; and the better made ones will sometimes fail: it is needful to consider farther what may be done in such extremity; for a supply must be had somewhere, or all will be lost. Thirst to cattle, as well as to mankind, is more terrible when in the extreme, than hunger, and is as certainly fatal in the end.

We have before mentioned, the taking advantage of springs for the supply, when they lie near the surface: when they are not to be found there, they always may be had at greater depths; and this is the proper resource, indeed the only one. Wells must be dug in fit places, when all other supplies of water fail. It is often a discouraging thought, to consider to what depths it may be needful to dig in this case for water, and what expence may attend it; but, on the other hand, there is the absolute necessity of the water, and the certainty of the supply: for water may be had any where, if the expence of digging be not spared. The construction of the earth is such, that there every where run courses at different depths, usually near the surface, and rarely at a great distance under it; wherever they lie they must be found on these extreme occasions, or all will be lost.

When the well is deep, and the supply of water that is required from it is great, there must be proper contrivances used for the getting it up. Men may be employed to draw it from small depths, and in moderate quantity; where more labour is required, an ass may be used, or where there is need, assistances may be employed to draw it from small depths, and in moderate

rate quantity; where more labour is required an ass may be used, or where there is need, assistances may be employed drawn from the principles of mechanicks.

ART. V. *Of the Charge and Profit of Farming.*

THEY commonly allow a farm to make three rents, one for the landlord, one for charges, and one for the tenant to live on; but it is but few farms that will constantly afford that increase, or be maintained for that charge; indeed, if you take a farm of 100l. *per annum*, if the land is worth 20s. an acre, 100l. may defray the charges of it; but if the land of a farm of 100l. a year be worth but 10s. an acre, you must allow 120 or 130l. *per annum* for charges, and you must reckon 250 acres of such land to 100l. a year, or you will lose by it, unless it is very improveable land.

But there being great variety of lands, and particular charges that attend some lands more than others, which will require the farmer's utmost care, diligence, & good husbandry, and which would take up more room to particularize, we shall refer him to proportion things as near as he can, according to Mr. Tusser's directions, as he has summed up the charges of farming.

1. One part cast forth for rent due out of hand,
2. One other part for seed to sow thy land;
3. Another part leave parson for his tythe,
4. Another part for harvest, sickle, scythe.
5. One part for plough-wright, cart-wright, knacher, smith,
6. One part to uphold thy teams that draw therewith;
7. Another part for servants, and workmen's wages lay,
8. One part likewise for fill-belly day by day:
9. One part thy wife for needful things doth crave,
10. Thyself and children the last part should have.

ART. VI. *Of chusing a Farm.*

IN the examining, purchasing, or farming of lands, there are two things chiefly to be considered, the wholesomeness of the air, and the fruitfulness of the place; next to which must be observed the roads, water, and neighbourhood; the former is beneficial with regard to the great article of carriage; water with respect to fertility; and the other with regard to sale of the productions of the land. Besides these considerations, the

the farmer should never possess more land than he is well able to manage, both by his purse and his person: the antients applaud spacious tracts of land, but recommend the well cultivation of small ones; for land of a large extent, not duly cultivated, will yield less than that of a narrow extent, managed to the best advantage.

That the farmer always ought not to be a person meanly bred, for although such who undertake this employment, are commonly bred and cut out for labour chiefly, yet the mere working part seems to be the meanest qualification in this business: a farmer's head may be of more benefit to him, in an hour, than his hands in a twelvemonth. Nor do I see any reason, why the art of farming should not be as rationally and experimentally taught as any other, since it so greatly conduces to the sustenance of mankind in general. Vegetation is an extensive field of study, and, though much has been written upon the subject, yet nobody has yet reduced the improvements that have been already made therein to any thing of a system, so as to lead either the gentleman or the practical farmer into a regular knowledge of the art: Nor can we be of opinion, that this art is yet brought to its ultimate perfection, in this or any other country; we are rather inclined to believe, that there is far more to be discovered, besides the many errors which from father to son are propagated.

When the blade of corn is rank in the spring of the year, sheep are fed upon it, which renders the stalks weak and the ears thin: yet the generality of farmers will not be convinced of it, any more than some other people can be persuaded that the cutting down of oak timber in the spring of the year, when the bark will easily part from the wood, is wrong—because it is the usual way here in England. But the sap of the trees being at that time in full motion in all their vessels, the timber soon after cutting is cracked and torn in many places, when exposed to the air, and will not last a fourth part of the time as that which is cut in winter when the sap is thickened and at rest. Yet there is an act of parliament to oblige every one to cut their timber at that season of the year, for the sake of the bark.

The French, who have made many experiments to try the duration of timber, by cutting it down at both seasons, have found so great a difference, that they never cut down their oaks in the spring; but to preserve the bark, it is then stripped from the trees when it will easily peel off, and the trees are felled in the winter following, by which means all the bark is saved.

ART. VII.

ART. VII. *Of the Nature of Tythes, and of things tythable.*

THE article of tythes, well known and clearly explained, will prevent many disputes, and be a means of saving much money to both landlord and tenant, as well as rector or vicar, or impropriator. I therefore beg you will insert the following on the Nature of Tythes, and in so doing you will oblige your humble servant, I. R.

Tythes, according to a general division, are reducible to three kinds, viz. *predial*, *personal*, and *mixed*.

Predial tythes are such as arise merely and immediately from the yearly fruits, profits, or produce of the land or ground only, as corn, (though it comes in part of the industry of man and part of the ground) grass, hops,* &c. For a piece of land or ground being called in *Latin*, *Pradium*, (whether it be arable, meadow, or pasture) the fruit or produce thereof is called *predial*, and consequently the tythe payable for such annual produce is called a *predial* tythe.—Note; these tythes are due without deducting the costs.—*Predial* tythes are divided in two kinds, viz. *Majores Decimæ*, or great tythes, which are commonly called *parsonage tythes*, for that they are properly due and most usually paid to the parson (who is sometimes the lay patron) or rector of the church. 2. *Minores vel minutæ Decimæ*, or small tythes; and these are usually called *vicarage* tythes, as being properly due and payable to the vicar or curate, though sometimes (as in a vicarage endowed) he has part of the great tythes also.

The *predial* great tythes are corn, hay, wood, &c.

Small tythes comprehend all other *predial* tythes besides corn, hay, &c. as also those tythes which are *personal* and *mixed*.

Personal tythes are such as arise and grow due by the profits that proceed from the honest labour and industry of mankind (after charges deducted) in some personal work, employment, artifice, or negotiation, as buying, selling, merchandizing, or the manual labour, art or occupation of carpenters, joiners, masons, taylor, fishers, fowlers, hunters, or the like; and for this tythe there is generally claimed the tenth part of the clear profits that they make by their respective trades,

* If wood be cut to make hop-poles, and so employed, no tythes are due where the parson hath tythe hops. The owner is not bound to dry or sort hops before the tythes are set forth; and quere, how the tythes of hops shall be set forth, whether by the tenth pole or by measure?

trades, arts, or employments; but this is only paid by custom, and but seldom in England, and cannot be extended to such as hunt, fish, fowl, &c. for their pleasure only.

Note; *Personal* tythes may be included under free-will offerings; though the statute 2 and 3 Ed. 6, c. 13. sect. 7 and 8, says, "all persons shall pay their offerings (or tythes which was intended) of honest labour, but not of robbers, usurers, harlots, &c." But all *personal* tythes are attended with more difficulty and niceness than profit, therefore the clergy are advised to desist from contending for them.

The third kind of tythes are said to be *mixed*, for that they participate in their nature both of *predial* and *personal* qualities, that is, such as arise partly from the earth or land, where the thing or animal is produced, bred, or fed; and partly from the labour and care of man in their raising, breeding, or feeding: of which sort are colts, calves, lambs, pigs, wool, milk, cheese, &c.

Tythes may be considered as they arise from lands by reason of some annual* product.

Not that tythe is due if the occupier has some profit whilst the ground lies *fallow*† for its improvement; but if by ill husbandry, it is otherwise. Barren heath, or waste lands, which are so of their own nature and not by accident or ill husbandry, are not tythable; and if such lands are improved and made good lands, they shall be free from tythes for seven years.‡ Stat. 2 Ed. 6. But not lands gained from the sea, nor marsh lands drained.

The produce of lands tythable are,

1. *All Harvest Fruits.*

As wheat, rye, barley, oats, &c. of common right. The parishioner is to cut the wheat, &c. down, and bind it in sheaves, and set it forth. The parson or his deputy may come and see them set forth, and *both* to carry them away, and that in due time, or the parson may be sued as a trespasser, and the parishioner is not bound to watch them.

Cutting

* Rule; Tythes are not to be paid, but only of things that do yearly grow and renew by the act of God.

† *Fallow land* is not tythable, because the letting it lie *fresh* or *fallow* improves the land. But if it be left *fallow* beyond the usual course of husbandry, the parson ought to have a recompence for the tythes.

‡ Yet if any tythes have been before customarily paid for such lands, the same tythes, and no more, shall still (during seven years) be paid for those lands by said Stat. 2. Ed. 6.

Cutting of green tares for feeding of cattle, &c. Grain or corn sown on headlands, pease and beans eaten in a man's house, rakings and stubble, are not tythable.

Where corn has grown and paid tythes the same year, the land is not tythable again. If corn, &c. is sold standing, the buyer shall pay the tythes; but if sold after severance, the seller must pay them; yet it seems that in the former case, the parson may sue either the buyer or seller.

Note, The parson shall not have tythes both of corn and of the feeding of sheep taken for the manure of the same lands.

2. *The Herbage of the Field.*

Grass, hay, clover, lucern, cinquefoil, &c. applied to feeding of cattle, are tythable every tenth cock, according to custom of places. Grass cut for sustenance of cattle (or pail) the owner not having sufficient otherwise, is not tythable: For the parson has a benefit by the labour or produce of the cattle (as milk, &c.) But *Grass* or *Herbage* eaten by barren cattle kept for sale is tythable, because such cattle yield no profit to the parson.

Custom is in some places to make the grass into hay for the tythe, in others in grass cocks or swathes only; but then the parson may make it into hay on the same land, and may go over it, and carry away, and break down any gate, or inclosure, erected to obstruct him.

Custom in some places to measure out the tenth part of the grass, and the parson to mow it.

After-mowth or after-pasture, pay no tythe unless by custom.

Tythes shall be paid of grass growing in orchards.* Pasture for beasts kept for plough and cart, or for pleasure, pay no tythes.

3. *Agistments, or usufructuary Profits of Lands.*

Tythes are due for agistments, (i. e. the feeding of cattle upon pasture lands, &c.) if the land pay no other tythe that year, and the cattle must be agisted for hire or sale, and not fed for plough, pail or labour, they being otherwise profitable to the parson.

If land is let to a stranger by the year, a tenth part of the money is due, otherwise respect is to be had to the number of cattle, and their time of feeding. If the owner eats it all with unprofitable cattle, the tenth part of the value of the land is payable, though custom or prescription may direct other kinds of payment.

[To be concluded in our next.]

* Orchards pay tythes of fruit sold. And if orchards are sown with grain, &c. and the produce sold, tythe is due for that.



THE
FARMER'S MAGAZINE.

DECEMBER, 1780.

A DISSERTATION on the Progress and present State of
AGRICULTURE. [Concluded.]

WE have in our progress given an account of the different parts of the known world where commerce has at any time led us, and spoken of their produce as far as chamber travellers could go.

We have, in a different part of this work, spoken of Scotland; and Mr. — affords us specimens of Irish husbandry. We shall therefore close this article with

A

Proposal for the further Improvement of Agriculture.

Written by an ingenious Clergyman at Honiton,*

Inscribed to the Societies of Arts, &c. in London, the Agricultural Society in Bath, and all other Agriculture Societies.

A Noble spirit for making improvements in Agriculture hath lately gone through this nation, for which posterity will thank the present age in terms of the highest approbation. The principles, on which those improvements have been conducted, are as judicious as the subject is important; and it is highly probable that many good effects will take place in every part of the kingdom.

Agriculture has been considered of national importance by the most discerning part of mankind in all ages.

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of

● Rev. Mr. Lamport.

Every civilized nation, at one period or other, have been convinced of its intrinsic excellence; and the wisest men, of every age and country, have unitedly bestowed the highest encomiums on it. In the present times, we have the satisfaction of seeing, that the noble, the wise, and the learned, do not think it beneath them to rescue it from that obscurity in which it had long been involved, and to bring it forward to public view, under the sanction of their own practice.

But it is not the purpose of this essay to write an eulogium on the dignity and utility of husbandry, either by adverting to the dispensations of God himself towards the Jews,* or by extracting from the writings of the most eminent men, ancient and modern. This is needless. Rather let us collect some of their best ideas concerning the means of advancing Agriculture to the highest perfection, and thereby fulfil, if possible, the purpose of this essay, which, it is hoped, will recommend itself to the attention and regard of the public, merely from the importance of the subject.

Julius Cæsar,* speaking of the manners of the Germans in their rude uncultivated state, makes the following instructive observations, which are applicable indeed to all people in similar circumstances. 'Agriculture they disregard; their diet 'consisting chiefly in milk, cheese, and flesh: for none of 'them have any certain quantity of ground, or even country, 'which they can call their own. But their magistrates and 'chiefs allot, for one year only, among the scattered inhabitants,† and their tribes, who associate together, such a portion of land, and in such a district, as they think proper; and 'then oblige them to reside at some other place for another 'year.

* Vide S. S. passim, particularly Lev. 25. The command in this chapter, that every seventh year should be a year of rest, or fallow to the land; and that the produce of the sixth year should supply the nation for three years, had a peculiar tendency to make the Jews *skilful*, as well as industrious, in works of husbandry; and I believe, it is pretty well known to every skilful cultivator, that land, well tilled, dressed with proper manures, and sown or planted with a judicious rotation of crops, will scarce ever stand in need of a fallow till the seventh year at least; and that the labour of the sixth year will be peculiarly blessed to such an husbandman. Thus much, however, is certain, that ground, cultivated as above, will frequently resist the ill effects of intemperate seasons, by which neighbouring fields greatly suffer, when under unskilful and indolent management.

† De Bell. Gal. lib. 6, cap. 22.

‡ Gentibus. On this word see a judicious criticism of the Monthly Reviewers, in their account of Holdsworth's remarks on Virgil, for June 1768, p. 426.

‘ year. They assign several reasons for this conduct—that the
‘ people might not be induced to exchange the study of war
‘ for that of husbandry—that they might not wish to increase
‘ their settlements, and so the stronger expel the weaker from
‘ their possessions,—that they might not erect any buildings,
‘ except barely to keep out heat, cold, &c.’

A country will be cultivated only in proportion as its inhabitants advance in civilization. Nations will not begin to civilize themselves till they cease migrating from place to place; neither will a man attempt to cultivate any spot, till he can say **THIS IS MINE**. But when men unite together for mutual protection and advantage, and settle in one place, the cultivation of that spot immediately becomes necessary, that it may supply them with the conveniencies of life. Property, therefore, must be gained and defined, settled and secured. These are circumstances on which the advancement, if not the very existence, of Agriculture depends.

But these are not all. There are two others of equal importance to its improvement and prosperity; the one is, the fruit of a man's labour must be secured to him; the other, that as the wants of men increase in consequence of civilization, the other must be encouraged to yield proportionable supplies.

This, however, can be effected only so far as the powers of the human mind are enlarged in consequence of civilization. Husbandry can rise no higher than the knowledge of those who are engaged in it will permit; it hath been indebted for its principal improvements, not only to the natural abilities of the cultivator, but to an education formed upon an acquaintance with other branches of science.

Whenever any of the above circumstances fail, Agriculture must feel a stagnation.—In proportion as they are regarded, will be the progress made in it, and its success.

This appears to be the case in fact; for these circumstances, especially the last of them, were not heretofore sufficiently attended to by this nation; which will fully account for the defective state of husbandry in former times, its slow progress, and its present improvements; while it also points out the most probable method of carrying it still nearer to perfection.

If we expect to find Agriculture in a thriving state before the Reformation, we shall be disappointed: it was indeed considered of importance, but *the fruit of a man's labour was not secured to him, and the nation was immersed in gross ignorance.*

The feudal constitution, the military disposition of the people, the tyranny of popish ecclesiastics, were unfriendly to skilful and vigorous cultivations.

There was no great encouragement for the owners of estates to exert themselves in the cultivation of them, while others were to reap the fruit of their labours: this was, therefore, left to their meaner vassals, whose spirits were sufficiently humbled to submit to almost any imposition. The same reason which is to be given for the uncultivated state of Italy, though in itself the garden of the world, may be assigned for the general disgrace into which rural æconomies had fallen in England, till the time of the reformation. "For one may venture to pronounce, without prejudice, that Agriculture, *cæteris paribus*, will always flourish most in free governments and protestant countries."*

In such a situation of things, when Agriculture was, as it were, banished into deserts, and in every respect took up its residence among mountains and dales, where knowledge had made small progress;—when the mind of the peasant was not enlightened by the rays of science; when he tilled the earth merely by the labour of his hands and the sweat of his brow, without any fixed principles; it is not to be supposed, that any considerable improvement could be made by him.

Nor was this all. Admitting that the principles of vegetation had been accurately delineated to his view, or experiments founded thereon proposed, it was not for him to investigate the one, or practise the other, while ecclesiastical tyranny prevailed, and he knew that the priesthood would reap the far greater part of the fruits resulting from his labour.

Tyranny over the mind will ever retard the progress of every kind of knowledge.

But, even after the Reformation, although many of the arts and sciences were cultivated with peculiar spirit, Agriculture did not receive encouragement proportioned to its great importance. Every thing cannot be attended to at one time. A new world had been discovered, which opened the brightest prospects to these kingdoms, and the attention of England was fixed chiefly on trade and commerce. This circumstance, which for a while appeared to be a principal impediment to husbandry, and was the cause of little attention being paid to Fitzherbert,* proved in the event one of its principal promoters.

* The father of English husbandry: Made Judge of the Common Pleas about the year 1524. His book of husbandry was printed in 1534, after forty years attention to the subject, in his recesses between the terms.

ters. By commerce, the various productions of different parts of the earth have been brought into this kingdom, and intrusted to the care of the skilful botanist and gardener, who, having naturalized them to this climate, commits them to the care of the husbandman. In return, Agriculture has ever since been assisting commerce in the increase of corn, hemp, flax, madder, &c.; and in proportion as both have been attended to, it is evident they have mutually assisted each other.

But as improvements prevailed, the importance of husbandry, in a national view, became daily more and more conspicuous;—the disadvantages and impediments it met with, under the management of common farmers, began likewise to appear. The weeds sprang up with the wheat, and skill was wanting to prevent this evil.

To check these weeds, by enlarging the views of those intended for the profession of Agriculture, was the noble attempt of the great Milton, who not only recommended, but established, a School, in which rural œconomics were to bear a principal part in his system of education. His pupils were to read the works of Cato, Varro, Columella, &c.* on Agriculture. But, unhappily, his loss of sight prevented him from realizing in practice what he had so judiciously adopted in theory.

That Evelyn, one of the most useful men of the age in which he lived, entertained the same sentiments as Milton, appears from the preface to his *Sylva*.† To him the nation is now, and will be for many years to come, greatly indebted for the strength of her navy.

To form a glorious triumvirate, we can invite the very modest and sensible Mr. Cowley, in support of the same plan. He recommended a college to be erected in each university, and the appointment of professors for the instructing young persons in the principles and practice of this useful employment.‡

But, as it is fate of the most useful designs at first always to meet with difficulties, Agriculture itself began, soon after, to fall from its flourishing state into national disregard. This, however, is easily accounted for.

I have laid it down as a general rule, that civilization encourages husbandry; yet it is possible that rural œconomics may be
impeded

* Letter to Hartlib, and Biog. Britan.

† Many millions of timber trees (besides infinite others) have been propagated and planted at the instigation and by the direction of this work.—See Dedication of *Sylva* to Charles II.

‡ Cowley's works, vol. II. p. 656, 7.

impeded by this very civilization, unless it be well regulated. A nation may be civilized to so high a degree of refinement, as that the politer part of its inhabitants will associate in cities and towns, and attend to nothing but pleasure and the fine arts. The consequence is, that Agriculture will be nearly in the same predicament as it was before the commencement of civilization.

In such a state of false refinement, the cultivation of land will be considered as beneath the notice of the rich and the learned, and be left to the ruder part of the people.

Such was the state of this nation in the reign of that gay Prince Charles II.; and could any thing else be expected but that Agriculture must severely suffer in an age so deeply immersed in luxury, pride, and dissipation? Especially if it be considered that the persons who paid the closest attention to it, had "crept into the confiscated estates of the nobility, gentry, and clergy," and were many of them originally in very inferior stations.

At that period, the maxims of the celebrated Bacon, the example of Milton, the efforts of the Royal Society, the proposal of Cowley, the complaint of Evelyn, and his just observations on the necessity of an enlarged education, in order to improve the lands of England, were exhibited in vain.

It was to little purpose that the ministry, after the restoration, permitted the exportation of wheat;* it increased tillage, but did not improve the mode of culture; or reconcile the nobility and gentry to what had been the object and care of 'mean and despised persons.'

Thus Agriculture fell into disrepute, and was driven back again to the mountains and vales, where Fitzherbert first found her; with this difference only in her circumstances, that she might be more easily recalled by the writings which were extant, whenever the nation should be restored to its characteristic sedateness.

Whenever any scheme of real utility and national importance, is formed by men of genius and true patriotism, the worst kind of impediment it can meet with is, that of national supineness and inattention.

Nothing, however, can totally check the vigour of great minds. Evelyn, in the midst of this general indifference, published, in the year 1675, his *Terra*, or, *a Philosophical Discourse on Earth*;† which, with the assistance of former publications,

* Combrune's History of the Prices of Corn, Anno. 1663, and 1670.

† In 1778, Dr. A. Hunter re-published this work, with notes.

lications, began to open the eyes of his countrymen to their true interest, to the dignity of his subject, and the necessity of more than a superficial knowledge, in order to make improvements in it.

The next writer we shall mention is, Lord Molesworth, who in his *Considerations for the promoting of Agriculture, and employing the poor*,* makes the following judicious remarks, quite in point to the purport of this essay. "As to Agriculture, I would humbly propose that a *School for Husbandry* should be established in every county, wherein a master, well skilled in Agriculture, should teach at a fixed yearly salary; and that Tuller's old book of husbandry should be taught the boys to read, to copy, and get by heart; for which purpose it might be reprinted."

Complaints of the impracticability of illiterate peasants making any considerable improvements in rural oeconomics, and the necessity of assisting them, began now to be as general as just, being founded on facts and sad experience, which were pregnant with many pernicious consequences. It was clearly seen, that they could not deviate from the beaten track, were not capable of reflecting on the nourishment of plants, in order to increase vegetable food by judicious and frequent ploughings and suitable manures; of introducing new classes of vegetables, however advantageous; or of making any experiments on scientific principles; especially as they knew, that if these failed, they should risque the failure of their rent. On all accounts, therefore, they must continue in the course marked out by their ancestors, however defective and injudicious.

These imperfections having been long observed and lamented, several gentlemen of public spirit, (the leader of whom was the famous Tull) took their estates into their own hands, and cultivated them with—'spirit, taste, and sense,'—by regulating the course of crops according to the nature of the soil—by banishing wasteful fallows,†—by destroying weeds, by stirring and pulverizing the earth while a crop was growing, and thereby preparing it for the immediate reception of a succeeding one,—by introducing new plants for the better support of man and beast in winter as well as summer, &c. But, unhappily, these capital improvements remained for a long time

* Dublin, Ann. 1723, Harte's Essay I. p. 156.

† We cannot fully coincide with Mr. Tull, in the idea that all fallows are wasteful. We readily grant, that by a judicious succession of crops, and ploughings often repeated, the annual quantity of fallow ground might be greatly reduced, without impoverishing the soil; but we still think that some fallows are annually necessary, especially where the land is naturally poor.

time within the circle of those farms where they originated, or those counties where such public-spirited gentlemen had set the example by their own practice. These modes of cultivation were novel; on this account they were slighted, if not derided, by the generality of the common farmers. The principles on which such culture was founded, were above their comprehension; it must, therefore, necessarily be, as they fancied it, too expensive for them to run the risque of practising.

This circumstance gave rise to another plan, in itself most honourable and benevolent, namely, the establishment of a Society in London for the encouragement of Agriculture, &c. who, by bestowing large premiums for the greatest crops, on given quantities of ground, effectually secured the farmer under any risk he might run. It was naturally imagined this would have answered the end proposed. But if we may determine from Mr. Bailey's register of the persons to whom premiums have been adjudged, most of the candidates have been far above the rank of common farmers. The diffusive plan adopted by that illustrious Society, was intended to include every farmer; but we find it has attracted the notice of very few, except the more civilized part of them; while many parishes, I was going to say almost whole counties, at a distance from the capital, remain uninterested about every thing relative to the Society, if not totally ignorant of its existence.

However, the advantages arising from that excellent institution excited and established others of a similar nature, in counties remote from the metropolis; each of which hath thrown additional light on the subjects of Agriculture. Many experiments and new discoveries* have been made, all concurring

* Here let me congratulate the public, particularly on the invention of the *Oil Compost* by the ingenious Dr. Hunter of York, which, having tried myself both on wheat and turnips, growing on very poor ground, I found it answer even to admiration, particularly with regard to the latter. I think it one of the best preservatives from the Fly; and can therefore recommend it as a valuable acquisition, being likewise a good manure, where dung is scarce, or the carriage of it expensive. It might be of signal service in the improvement of waste ground till dung can be raised; for were such ground to be pared, the turf dried and thrown into heaps for burning, and in the mean time the earth between the heaps ploughed carefully and to a proper depth; and, after this, the ashes spread, ploughed in, and well harrowed, the turnip-seed sown, and the oil compost spread by hand at the same time, or just on the appearance of the turnips, I think there would be but little danger of a good crop, if well hoed; as ashes are peculiarly favourable to the growth of turnips; and if they were to be eaten off with sheep, and the next course barley or oats, with grass-seeds suitable to the soil, I am persuaded this would prove one of the most speedy, effectual, and cheap methods of improving such waste lands; especially if in a dry spring, the ashes were to be spread the latter end

curring to prove that very little of the true principles of vegetation was understood by those who had undertaken to supply the nation either with food or materials for carrying on the linen or woollen manufactures.

Who are the persons that have so increased the produce of wheat, that the London Society admit no claims for the premium under five quarters per acre; although the average quantity produced the last favourable year did not, in all probability, far exceed three quarters per acre throughout the kingdom,* if you except the estates of gentlemen?

Who are the persons that have so much promoted the growth of cabbages, carrots, madder, &c. by field culture? Who have been and are likely to be, in general candidates for the premiums of the above laudable Society? And who are they who are attending to husbandry according to its true principles? Not the uninstructed farmers, who are yet but little acquainted with the subject as to several of its essential and fundamental points. They are ignorant of the various properties of different manures, and how they respectively operate, particularly on different soils, nay, on the same soils when differently circumstanced, as well as the different inherent qualities of soils apparently similar, &c. But without the knowledge of these properties and qualities, mistakes have been and will be committed by farmers, and disappointments in their crops will happen, which they know not how to account for, nor in what manner to prevent in future. A remarkable instance of the necessity of making experiments on the different qualities of soils, may be seen in the *Complete English Farmer*, p. 104, 5.

Were these things better understood, they would not continually manure their ground with dung, where lime and marle are easily procured, nor constantly repeat lime on the same field, because it carried several good crops while abounding with vegetable food; they would not take three exhausting crops in succession; nor proceed in the same course of crops on every kind of soil.

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end of April, and the land sown with buck-wheat, to be ploughed in as a manure when in blossom, and then the turnips to be sown, the oil compost spread, and both to be harrowed in as above. I have raised pretty good turnips after buck-wheat ploughed in, without the oil compost; but as the expence is not great, the using of both would perhaps be the *ne plus ultra* of improvement in the circumstances above-mentioned. The grand fault committed after paring and burning is, taking too many exhausting crops. A coarser kind of all, I am informed, is made in Cornwall, from pilchards, which would, in all probability, make the compost come considerably cheaper, For the method of making, see Dr. Hunter's *Georgical Essays*, vol. 1.

* In this we believe the Author is mistaken.

These mistaken notions and practices cannot be removed merely by the distribution of premiums. The ideas of illiterate farmers will not be much rectified by many of our publications on husbandry, which some cannot, and the generality are too opinionated to read: add to this, that whoever implicitly follows the theory contained therein, will often be led into errors that would end in loss and disappointments.

Premiums have a tendency to excite a spirit of emulation and industry to increase the produce of the earth, according to the different mode to which any district or county hath been accustomed; but a common farmer, should he become a candidate, will have no more chance of succeeding against persons of a liberal and extensive acquaintance with the principles and practice of Agriculture, than any one of his draft horses could have in attempting to keep pace with his landlord's hunter.

Can the bare donation of premiums give instruction to the mind? Ought not this to be communicated in youth, when the disposition is docile? Enlarge the views, by cultivating the understandings of young persons while they are most susceptible of impressions and free from prejudices, and they will be continually increasing in knowledge as they grow in years; but if the mind be not improved early, the consequence will be in general (for the exceptions are but very few) that they will pertinaciously adhere to old customs, however absurd.

Whoever hath been much conversant with the common farmers, (and it is by them chiefly that our lands are cultivated) must have observed that they generally associate together, communicate their ideas to each other in their own way, gain no more information from one another than the knowledge each hath obtained can bestow, and that their observations are founded on their own customs in the country where they reside. They are a class of people *sui generis*, and stand at a distance, as it were, from a man of learning; and unless he can make himself very familiar with them, and converse in their own style, it is most probable, that they will either entirely mistake his meaning, or inwardly sneer at some expressions which they do not understand, and thus go away unimproved as they came, or resolved not to follow his advice. Of great importance, therefore, is education, to extend and call forth the powers of the mind, and to render it ductile and teachable!

Therefore, until Agriculture is erected on this enlarged basis, will it not continue a vague and abstruse study in itself,
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and remain far short of that degree of perfection which our public-spirited and useful Societies would wish to attain?

If Agriculture is to be improved by learning, why should not this class of people, the farmers, be better educated? They are capable of improvement. Let them be well instructed, and improvements in husbandry will soon make their way into every village, perhaps without assistance from premiums. However, when instruction is stimulated by premiums, the great end, I trust, will be still more effectually answered.

Every one who reflects justly must be sensible that it is with Agriculture as with Physic. While facts and experiments are producing and increasing the best knowledge, it is necessary that those who may hereafter engage in either of the professions, be instructed in the first principles of the one, and the practice of the other.

Agriculture is a science as well as an art; and some general scientific knowledge is requisite before that art can be practised with any rational hope of full success; unless quacks may be allowed to perform perfectly well in Agriculture, although they are continually breaking the sixth commandment in physic.

Mr. Young, indeed, observes, that "experience is an admirable foundation for any kind of structure; but in Agriculture she must be the structure itself, not the foundation."^{*}

But I would have taken the liberty to ask, what is to be the foundation of this structure? Had not Mr. Young himself pointed it out, when he ingenuously confesses, 'in many instances I have been a very bad farmer, and acted contrary to the dictates of good husbandry.'[†]

No one will pretend to deny that experiments are the life and soul of husbandry; but they must not be made at random; for to what can such experiments tend, except to the frequent disappointment of the farmer, and to the public loss?

Indeed the encomium which Mr. Young hath so justly passed on Dr. Home evidently proves, that the practical part of Agriculture must receive considerable benefit from scientific knowledge.

It is hoped, that these remarks will not be considered as a censure on Mr. Young, or 'as a cavil at excellence.' They are intended only to place this subject in the most enlarged point of view.

However short and defective the above account of the state of Agriculture in this kingdom at different periods may be,

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^{*} Experimental Agriculture, pref. p. 15. [†] Ibid. p. 6.

yet I hope I have made it appear—that it is much indebted for its present improvements to learning and civilization,—that whatever deficiencies it labours under, they are owing to a defect in the education of farmers in general,—that it hath a close connection with other branches of science,—that learning and experiments must go hand in hand,—that the proposals of those sensible and learned men above quoted for establishing schools of Agriculture were founded on enlarged views, substantial grounds, and the greatest propriety,—and that the little attention which has been paid thereto, can be attributed to nothing else but certain temporary circumstances, which retard improvements of one kind or other in every age.

Agricultural Societies were not established when those gentlemen wrote; and it can hardly be supposed that, whatever propriety or utility there might have been in the plan, they alone could suddenly turn the regard of the nation to a subject of which it had then scarce any idea.

The case is now otherwise. Agriculture hath arisen like a star of the first magnitude in our hemisphere; and many of the wise-men of our nation, of all ranks, are continually turning their eyes towards it. They are attracting the notice and regard of their neighbours in their truly noble spirit and conduct.

Let this spirit continue to prevail; let Agriculture be studied by gentlemen of landed property on philosophic principles; let it be taught to their tenants; and the happy consequence will soon be apparent throughout this island.

The difficulty of instituting schools for husbandry, is now trifling, since so many societies have been established and are supported with so much liberality, especially since the *Society of Arts, Manufactures, and Commerce*, is annually offering such vast sums of money for the encouragement of experiments; and none of the other societies, I should apprehend, are formed on so small a scale as to preclude the practicability of taking into their hands a few fields, (and a few would be sufficient) and of appointing some person or persons to cultivate them, and instruct the pupils, either according to the idea of Lord Moleworth, which points to the education of poor men's children; or, according to the ideas of Cowley and Sir William Petty, which respect the education of gentlemen's sons as well as others.

At present, however, let us attend to the advantages accruing from each of the above plans; premising only, that lectures on the theory of husbandry must, by all means, be accompanied with a close attention to the practical part of it, in such a manner

manner as may tend to correct the mistakes of speculation, to open and enlarge the mind, and to give a clearer insight into the nature of vegetation, and the very fundamental principles of Agriculture.

Were Schools established in different parts of the kingdom for the education of farmer's sons who might be but in low circumstances, gentlemen would never want sensible and rational improvers of their estates, who would likewise be the most proper persons to instruct parish apprentices and inferior servants. This the old-experienced Varro reckoned to be of principal importance. 'The bailiffs,' says he, 'should be men of some erudition, and some degree of refinement.' But more especially ought a bailiff to be well skilled in rural æconomics; he should not only give orders, but work himself, that the labourers might imitate him, and be convinced it is with propriety he presides over them, because he excels them in the practical part, as well as the scientific.*

Were this the case with us, local and established customs would be regarded no farther than they are founded in propriety; younger servants would be accustomed to a variation in their methods of culture as circumstances varied; new modes will not be despised, because they are new; the effects of experiments would be modestly expected; the advantages and disadvantages attending them would be accurately discerned; and a continual progress would be made in the science and practice of Agriculture. Were some smart boys selected by each Society, and educated on the above plan, they would hereafter convey knowledge wherever they went, and their observations would be attended to by inferior servants than if they came from persons of high rank. In short, they would effect what even the superior knowledge of noblemen and gentlemen could not perform, who have more important objects in view than to cultivate the neglected understanding of every rustic labourer they may have occasion to employ. Like smaller rivulets branching from the main stream, they would water and fertilize those lands where a larger river cannot with propriety expand itself.

While under tuition they will learn the expediency of a clean and spirited system of husbandry, as it is supposed that
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* Qui præsent, esse oportere qui literis sint et aliqua humanitate imbuti.—
Præterea potissimum eos præesse oportet, qui periti sint rerum rusticarum; non solum enim debere imperare, sed etiam facere, ut facientem imitentur, et ut animadvertant cum causa sibi præesse, qui scientiâ præstat et usu. Lib. cap. 17. apud Autores de Re Rustica. Edit. Jucundi Veronensis, 1625.

their tutor's fields will be cultivated on these principles. On comparing his crops with those of many others, the truth of Hesiod's maxim would be apparent, that *half may be more than the whole*. For should they think of becoming tenants, they will view an estate with this ruling principle, that one of an hundred pounds per annum well cultivated, will produce at the end of the term more clear profit than another of two hundred a year, treated in a negligent and slovenly manner.

An injudicious course of cropping, imperfect tillage, partial and improper manures, are not always to be attributed to ignorance, but sometimes to the estates being too large for the farmer's capital; he does not command the estate, but the estate him, too frequently to the great injury of both; his hands are bound at his first setting out, and it is much if they regain their freedom unless eventually through his landlord's distraining him for rent and ejecting him from the premises. But what is the farmer to do if he cannot find a farm in his own neighbourhood suitable to his own capital? Shall he remove into another county, an entire stranger, or commence day-labourer, or starve?

The modern practice of throwing several small farms into one, is much to be lamented as a national evil in every view, and calls loudly for the regulation of the legislature.

But to return to our young farmer, transplanted from the nursery, where his mind received its first cultivation, unto the spot where he is supposed to fix his residence.

While under instruction, he was taught to form a pretty good judgment of the qualities, such as the tenacity, dryness, or moisture, of different fields, from the herbage they spontaneously produce; he will therefore immediately perceive which are most proper to be the first under tillage, in order that the estate may not be impoverished. The want of attention to this circumstance has kept many a man poor all his days, under a notion that the best ground will carry one or two good crops of exhausting corn at first, and so far prove of immediate great gain; not considering, that it generally proves a future heavy loss, from the necessity he will be under of letting it lie fallow, and of applying much expensive labour in order to extirpate weeds, and much more expensive manure in order to recover its lost strength. Yet still, there is a certain vigour in those fields which have been under a judicious course of meliorating crops, though but moderately manured, which even a fallow and a complete stercoration cannot bestow on any soil which
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hath been once impoverished; as may be more easily perceived by a discerning eye, than described.

Our farmer hath been taught that the good ground (on which his chief dependence is for paying his rent) if preserved in good heart, will often mend the bad; but the impoverishing of one or two of the best of the fields will frequently affect the whole estate in the decrease of its pasture, in lessening the quantity of manure, and increasing the expence of tillage.

It hath frequently been inculcated on him, that his future success depends much on his first course of crops; that at first, especially meliorating crops, are to be preferred, as far as circumstances will admit, to exhausting ones; that the latter whenever they are sown, should be succeeded by the former; that those manures which are most apt to produce weeds, should either be laid on pasture, or ploughed in for such crops as can be best hoed, or have the best tendency to destroy them, viz. beans, peas, turnips, cabbages, &c.; that, although some of these crops may require rather more expence, and not return that expence in money quite so soon as some of the exhausting ones (part of them being appropriated to the fattening of cattle, by which means the best of manure is raised, and in the largest quantity) yet like those bees which travel farthest, and stay out longest, they generally return home most deeply laden; that the dung-heap be most sedulously regarded as the foundation of his future wealth; but that no manure should be laid on wet springy lands before they have been drained, unless he chooses to sink the profits of all his other fields.

He hath been taught to venture on some few experiments, on general fixed principles, which though they might not all of them perfectly answer his expectations, may, nevertheless, throw additional light on the subject of Agriculture. In a word, he will become fit company for a gentleman; he will receive and communicate information; and, at the same time, on account of that close attention which he finds requisite, in order that he may pay his rent, he will be continually increasing that important knowledge which an uninstructed mind cannot possibly attain.

Such an institution as is here recommended, may possibly be of service to those farmers who have no particular connection with our Agricultural Societies; whose fields, however, lying open to the continual view of their neighbours, will be a constant lesson to those who most need instruction, speaking much more intelligibly to them than accounts of experiments stated on paper; against which they will be frequently starting that particular

particular kind of doubt, which I have found to be generally expressed in some such language as this, *it may be so, but I don't know*:—a doubt arising from a cloud enveloping their minds, which the powers of reasoning are very ineffectual to dispel. But they will sometimes learn that lesson from the plants of the field which they might not choose to learn from the tongues of their fellow-creatures, because they will not avowedly acknowledge others to be their superiors in this art and science.

The advantages of such an Academy for the education of gentlemen's sons, will be no less evident with regard to themselves, their posterity, and the nation in general.

On this part of our subject, my learned master thus expresses himself:—"According to the best observations, the proper time to infuse that useful part of natural philosophy called husbandry, is in the earlier stage of life, when there is curiosity and a thirst for knowledge. And, if practice here could be joined with theory, enjoying the open air, exercise, and activity, agree well with the turn and cast of young people, not to mention a revolution of perpetual variety which is very engaging at their age.

"It is one point gained, without doubt, to be enabled to read the husbandry works of Cato, Varro, Virgil, and Columella, with taste and knowledge. It may open a new walk on classical ground; and, in all probability, give young men certain predispositions in favour of Agriculture. Yet still, the whole combined together will produce but slight effects, unless we call in the assistance of facts and experience.

Something of this kind ought certainly to be done, and the complaint of Columella, when he says with some degree of warmth, "*Agricolationis doctores qui se profiterentur neque discipulos cognovi*,"* should, if possible, be removed."

The former part of this quotation evidently intimates, that the improvement of young gentlemen in classical learning would not be impeded, but rather promoted, by attending to Agriculture; and the experience of every one who has led a studious life will testify that the open air invigorates the mind, and prepares it for receiving instruction, because it can bear application only to a certain degree, and stands in need of being frequently re-invigorated by amusements and lighter studies.

Time is precious, and might be virtually lengthened by a proper disposal of it. When the mind is fatigued with close application, exercise in the open air will renew its strength and activity. Additional to their being taught the value of the dis-

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* Harte's Essay I. p. 157.

ferent fields over which they may walk with their tutor, from the various plants each field naturally produces, botany may be attended to as a pleasing and instructive science; neither should planting and gardening by any means be neglected, nor the art of surveying and delineating estates be considered as beneath their notice.*

In bad weather they may be occasionally amused with experiments on various branches of natural philosophy; the effects of the air with regard to vegetation, and the nature of different earths and manures, after the manner of the Doctors Home, Fordyce, Ainslie, Priestley, &c. They should also be instructed in the principles of mechanics, especially that part which relates to hydraulics, it being of principal utility in draining, and other modes of improving estates.

These are circumstances from which many of the capital improvements lately made, in a great measure, originated. They were indeed considered of principal importance by Sir William Petty, one of the greatest men of that or any other age,† who recommends them with earnestness, for reasons highly worthy of himself, and which will be mentioned hereafter.

Having gained some knowledge of Agriculture, they will read the works of the ancient agricultural writers with improvement and pleasure; a circumstance which will much expedite the knowledge of the languages. For without excluding other prose authors, may I not venture to assert, that the ancient writers on husbandry are, from the nature of their subject, and their classical style, as proper for young persons, and as suitable to their dispositions and capacities, as any they generally read? Indeed, I have always been apt to suspect, that putting the works of Homer, Horace, Virgil, Ovid, or, in fact, any other poet, into the hands of boys, before their minds are properly furnished, and their taste and judgment sufficiently advanced to enter into the spirit of those excellent writers, has been only rendering learning irksome to them, and proved the means of their bidding a final adieu not only to those authors, but to all classical literature, when they have left their grammar-schools; not to mention that prose writers seem, in themselves, best calculated to teach any language by, as well as to convey the most useful information to the minds of youth.

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Poetry

* It is not wholly meant to exclude the sons of poor men from these studies.

† Biog. Britan. Article Boyle.

Poetry and painting are sister arts; they alike receive advantages from rural scenes; witness the six pastorals of Mr. Smith, than whom, as a landscape-painter, and as a poet, this age hath not, perhaps, produced a greater.

The following is one instance, among many others, to prove how favourable an intimate acquaintance with rural images is to poetical description.

“ The night was still—the silver moon on high
 “ Dappled the mountains from a clouded sky :
 “ Silent as fleecy clouds thro’ æther sail,
 “ Before the gently-breathing Summer’s gale ;
 “ So thro’ the misty vale in twilight grey,
 “ The sleepy waters gently pass’d away.”——

Engaging in rural concerns will strengthen the whole human frame, the powers of the mind, as well as the members of the body; will give a manly turn to thought, duly regulated and refined by polite literature. A person thus educated will never want a variety of entertainment in the country to fill up his time in a manner equally innocent, rational, and useful. He will be continually increasing in valuable knowledge, and preserve himself from that dissipation which enervates the mind, renders retirement burthenfome, and the more public and momentous concerns of life too arduous to be executed with propriety and decorum. He will enjoy his *otium cum dignitate*, and, at the same time, his private amusements will give a certain dignity and polish to his sentiments, which on all occasions he will be the better enabled to express in public with a truly British spirit, Roman firmness, and Attic elegance. There will appear in his whole manner and address, that *simplex munditiis*, which is equally removed from empty affected foppishness and mere clownish rusticity. He will be fitted for such department in the government of the state as may best suit the natural bent of his genius, whenever his assistance may be thought necessary; and may rank hereafter among those worthies who had acted the same part before him, and whose eulogium may be delivered in the words of the Roman orator, “ Ab aratro
 “ arcescebantur qui consules fierent—Suos enim agros studiose
 “ colebant, non alienos cupide appetebant, quibus rebus, et
 “ agris et urbibus et nationibus rempublican, atque hoc imperium et populi Romani nomen auxerunt.”*

But to return into the more humble walk of cultivation and emolument.

When our young pupil shall come to the possession of his paternal estate, he will immediately perceive what is to be

* Orat. pro Ligario.

done to the best advantage; he will be able to direct his servants, rather than be imposed upon by them, which must ever be the case when the master is unacquainted with the business he superintends. This is a matter of high importance. For, if in any other profession he should spend his fortune, it is possible he may be the only sufferer; but it is not so in Agriculture. Every field is, in some respect, public property; and if his crops fail through unskilful management, whatever is lost by the owner is, in some degree, a loss to the community at large.

When I reflect on this, and consider how much the crops are diminished, through the mistaken notions and obstinacy of the common farmers, especially when they rent larger estates than they have strength to manage; and when I view the almost immeasurable quantity of improveable land which yet remains waste and next to barren, I cannot but agree to the supposition of Mr. Harte, that the lands of England may be made to produce one-sixth part more than they do; a point this of great national importance, amounting to near four millions of money annually!

Whatever advantages may accrue to gentlemen from committing their estates to the management of such a skilful and well-educated bailiff, as hath been above recommended, yet they should not be left wholly to him; for experience hath too often shewn, that the integrity of a man's heart does not always keep pace with his understanding. Indolence, self-interest, pleasure, and other temptations, may cause him to neglect his master's interest at a critical time, the evils of which neglect may not be remedied for years together. Every one who hath attended to works of husbandry must be sensible, that in all their several parts they are only links of one chain; either of which being broken, the whole work is thrown into confusion, particularly with regard to the most proper seasons for the different labours of the field; a circumstance of no small moment in our varying climate.

This sentiment should be impressed with all possible energy; and it cannot be done in more forcible and comprehensive terms than those of Cato: "*Res rustica sic est, si unum rem ferò feceris, omnia opera ferò facies.*"

It is likewise to be observed, that although the gentleman's crops may, in many instances, be larger than those of other men, yet, by trusting too much to his servants, he is often put to needless expence, which the common farmers avoid, and on account of which they object to the propriety of his method;

so that hereby the public-spirited gentleman sometimes hurts the cause he intends to serve.

However, the well-educated bailiffs are more likely to do their masters strict justice than the illiterate; those little meanesses which the latter hardly think any thing of, though frequently attended with considerable disadvantages, the former are in general above committing, because they know better.

Indeed I cannot consider the study and profession of Agriculture as any way unbecoming the character of a clergyman; he may hereafter prove of great service to his country parishioners, as his advice and method of proceeding would be readily attended to by the younger part of his parishioners, and he will have frequent opportunities of conveying just ideas of improving their modes of cultivation. Thus the knowledge of Agriculture may be diffused in every part of the country where such a gentleman fixes his residence. Should his cure be but small, he will have a fair opportunity of preserving himself from that dependance, which might too often lessen the weight and energy which should always accompany his religious instructions.

It was thought proper to reserve Sir William Petty's *Advice for the Advancement of Learning*,* for this place, because his plan is in itself highly judicious, and includes the ideas of Cowley and Lord Molesworth.

Sir William proposes, "that there be instituted Literary Work-houses, where children may be taught as well to do something towards their living as to read and write.

"That the business of education be seriously studied and practised by the best and ablest persons.

"That all children above seven years old may be presented to this kind of education; none being excluded by reason of the poverty and inability of their parents; for hereby it hath come to pass, that many are now holding the plough, who might be made fit to steer the state.†

"That all children, though of the highest rank, be taught some genteel manufacture in their minority, or turning of curious figures, &c. limning and painting on glass, or in oil colours, botanics and gardening, chymistry, &c. &c.

"And all for these reasons:—They shall be less subject to be imposed upon by artificers; they will become more industrious in general; they will certainly bring to pass most excellent

* Published in 1648.

† Cincinnatus was called from the plough, in order to steer the state as Dictator; and returned to it again after he had delivered Rome from her danger.

lent works, being, as gentlemen, ambitious to excel ordinary workmen. They being able to make experiments themselves, may do it with less charge and more care than others will do it for them. It may engage them to be Mæcenas's and patrons of arts. It will keep them from worse occasions of spending their time and estates. As it will be a great ornament in prosperity, so it will be a great refuge and stay in adversity and common calamity."

After these observations, need any thing be added to shew the advantages of such an education, except attempting to obviate an objection which may possibly arise with regard to the difficulty of procuring proper tutors?

This, however, seems to be a difficulty, which, in this enlightened age, may be soon surmounted. I imagine there are many persons in the kingdom well skilled in scientific and practical knowledge, who would, were they encouraged, readily step forward, and reduce Agriculture (both in theory and practice, with all its connections and dependencies on botany, chymistry, and other branches of natural philosophy) into a system of education as regular, plain, and introductory to right conduct, as in any other art or profession of life. Let it have but a beginning, and instructors would, no doubt, soon abound.

The author will not be wanting in any thing which lies in his power, however small, to promote so desirable an end.

And with this declaration, he submits the foregoing observations to the judgment of the wise, the candid, and benevolent.

ART. II. *On the Nature of Tythes, and Things tythable.*

[Concluded from page 336.]

Agistments, or usufructuary Profits of Lands.

TYTHES shall not be paid for young cattle bred for the plough or pail. If cattle are taken in for hire, either the owner or the occupier may be sued, but regularly it ought to be the occupier of the land. If tythes are paid for wool, the sheep shall not pay for their herbage. Oxen or sheep kept for sale pay tythes for their pasture, but not wethers, because they render tythe of their wool. No tythes seem to be due for sheep-walks, sheep-folds, &c. for the parson has a benefit by their manuring the land,

4. *Timber-trees, and Under-woods, with Fruits.*

Timber-trees; oak, ash, elm, &c. are not tythable of common right, nor trees growing in parks, forests, chaces, and the branches with the shoots and bark are discharged with the bodies.

bodies. Nor fruit-trees, nor aspin, beech, hazel, holly, willow, maple, &c. where used for building by the custom of the country.

Under-woods; tythes are generally due if sold standing, payable by the buyer; if felled, by the seller. In like manner broom and furze, but are not tythable where used for house-boot, hedge-boot, or cart-boot.

Fruits from oak, beech, &c. as acorns, masts, if they drop from the tree and swine eat them, they pay no tythe, but if severed for feeding of swine they do, or if gathered and sold. Apples, pears, plumbs, &c. in inclosures, gathered for sale, pay tythes in kind.

Nurseries shall pay tythes, if the owner dig them up, and sell them into another parish, viz. if the owner dig them up, he pays the tythe; but if he sells them standing, and the vendee takes them up, the vendee shall pay the tythe.

5. *Mines, and what is dug out of the Earth or made of it.*

Mines of silver, copper, tin, lead, &c. are not tythable of common right, but in some places custom has allowed them: of lead ore in Derbyshire a customary tythe is due, and the like it seems of tin ore in Cornwall; but quarry, chalk, clay, coals, turf, peat, fullers-earth, &c. are not tythable, nor stone, brick, tiles, &c. because they are made of the substance of the earth, and no annual increase. No tythe shall be paid for salt, unless by custom.

6. *Garden-Herbs, seeds, and roots, &c.*

Tythes are due for all pot-herbs, saffron, annis, cummin, potatoes, turnips, carrots, parsnips, onions, &c. and (it seems) of flowers.

7. *Eggs, young Fowls, Calves, Lambs, young Pigs and Cattle.*

Tythes of ducklings and geese are usually paid in kind, but of hens or turkeys most commonly in their eggs* as custom guides. No tythe of swans, turkeys, pheasants, partridges, pigeons, &c. for them or their eggs, are due of common right, they being wild by nature, unless by custom; but if tythe is paid for the young, there shall be none for the eggs. No tythe is due for pigeons consumed in a man's house.

If a person has ten calves, colts, lambs, &c. in one year, tythe is payable; but if he has fewer than ten, none in kind is to be paid that year, except a special custom warrants it; but in

* Of tame fowls, tythes are due, either of their eggs or young; but where tythes are paid of the eggs, none are due for the young; so where tythes are paid of the young, none are payable for the eggs.

in such cases there is usually a rate-tythe, or the parson (by custom) carries till next year. The tythes of young cattle are payable when weanable.

Note, No tythes are due for cattle which are not profitable to the owner; so of saddle horses, hunting horses, &c. being for pleasure only; otherwise, if let out for hire.

8. *Milk. Under this head is comprehended cheese and butter.*

When cattle yield other profits besides their young, such profits are also tythable, as of the milk, butter, &c. of cows, asses, goats, sheep, &c. But as to tythes of other cattle (except cows) the custom only must guide.

Milk is to be paid every tenth meal, and carried either to the vicarage-house, or church porch, according to the custom of the place. By custom a number of cheeses may discharge the milk, &c. for if tythes of cheese or butter be paid in kind, no tythe milk is due but by custom; for cheese and butter is made by labour, and so the tythe not due of itself, and when tythe milk is paid, no tythe for cheese or butter is due.

9. *Wool and skins.*

Wool of sheep or lambs are tythable proportionably to the time fed in a parish, to wit, 8 pounds of wool in eighty if fed there a whole year, four for half a year, two if a quarter, and the twelfth part if only a month, and nothing for less than thirty days; by custom it may be paid at *Lammas-day*, tho' due at shearing time. If shorn and die before Easter following, no tythes are due; nor for sheep that feed after the corn is reaped. Shearing of sheep to preserve them in their walks from brambles and vermin are not tythable. If the owner kills his sheep, he must pay tythe for the wool, but not for the skin. Nor of pelt or fells of sheep, which die of the rot.

10. *Milch Beasts.*

Paying tythes for milch beasts, no discharge of other beasts.

11. *Of Beasts wild by Nature, and Fish.*

No tythes are due for creatures *feræ naturæ* without a custom, and therefore none are due for deer;† hares, conies, nor wild fowl. Fish taken out of the sea, or any river or pond, are

† It is said, that if sheep lodge in one parish, and feed in another, the tythes shall be divided. But query, for by lodging the land is bettered, but by feeding 'tis worse.

‡ Venison, though not tythable itself, may yet be given in lieu of tythes.

are not of right tythable; as of herrings at Yarmouth, and a custom to pay less than a tenth part may be good. But trouts taken in a river are tythable by Stat. 2 Ed. 6.

12. *Houses.*

No tythes by common right are payable for houses but by custom, except in the city of London, modusses being for what increaseth; now houses decrease, and are inheritances, and it is a rule no tythe shall be paid for inheritances; nor can husbandry (the produce of most tythes) be exercised without houses. Noblemen's houses are exempt by Stat. 38 Hen. 8. No tythes are due for rent on houses or lands, because knit to the inheritance.

13. *Mills.*

Fulling-mills, tin-mills, plate-mills, ragand paper-mills; are not tythable, because the profit arises by the labour of men.

14. *Bees.*

Tythes ought to be paid of wax and honey of bees in an hive.

15. *Profits made by tradesmen, &c.*

This is mentioned before, tit. *personal tythes.*

ART. III. *A Receipt to kill Rats.*

A QUART of oat-meal, four knots of nux vomica rasped, four drops of the oil of Rhodes, and one grain of musk, all kneaded together in a paste, and left at proper places.

ART. IV. *Remedy for a Dropsy.*

WEAR a girdle of frankincense spread on thick cloth round the body constantly.

ART. V. *A certain cure for the Hiccough.*

ONLY take a thimble-full of brandy, rum, or geneva, when the fit is most violent, which has been found an infallible remedy. This was discovered by a person so violently affected, that he despaired of relief; and having tried all that was prescribed by the physician and apothecary, at length took a small quantity of spirits, by way of cordial, and was agreeably surprized with immediate relief from the hiccough, and always after with the same success. He has also prescribed it to others, and has never known it to fail.

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